DEFENSE LOGISTICS AGENCY
DEFENSE SUPPLY CENTER, COLUMBUS
POST OFFICE BOX 3990
COLUMBUS, OH 43216-5000

IN REPLY REFER TO DSCC-VAI (Mr. Abdouni/614-692-0565) 15 April 2004

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Drafts of MIL-DTL-22992F basic Specification, MIL-DTL-22992F Supplement 1, MS14054E, MS14055H, MS14057G, MS17342C, MS17343F, MS17344F, MS17345E, MS17346E, MS17349D, MS17350D, MS18062C, MS90557G, MS90561F, MS90563F, MS90564F, MS90565H, MS90567C and MS90569A.
Connectors, Electrical, Circular, Waterproof, Heavy Duty Type.
Project Numbers 5935-4719, 5935-4719-001 through -018, and 5935-4719-099.

This letter is an initial draft notice of the subject documents. These documents are being revised to do the following:

- Incorporate amendment 6 into the basic specification & Update the format to current procedures.
- Remove references to canceled documents and add superceding documents.
- Cleaning up the drawings.
- Updating the qualification section.

Please note that text that is bold; is text that we are proposing to add to the documents. The bold feature will be removed in the published documents. Also, text that has a strikethrough line, is text that we are proposing to delete. It will be removed in the published documents.

These revisions will result in improved documents and lower cost parts.

The initial drafts of these documents are available for downloading from our web site at:

http://www.dscc.dla.mil/programs/milspec

This draft is in the PDF format and requires Adobe Acrobat Reader to view and print it. If you do not have access to the Internet or otherwise are having trouble downloading this file, please contact us and we will provide you with a hard copy.

If this document is of interest to you, please submit your comments with justification, in electronic format only. Your comments should be received at our office within 45 days of the date of this letter. Any further coordination concerning this document will be circulated only to organizations and firms that furnish comments or reply that they have an interest.

If you require further information, please contact Mr. Abdonasser Abdouni at: 614-692-0565, fax: -6939 or e-mail: abdo.abdouni@dla.mil.

Sincerely,

/signed/

RICHARD L TAYLOR
Chief
Interconnection Devices Team

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719–099.

INCH - POUND

MIL-DTL-22992F
SUPPLEMENT 1
DRAFT

DETAIL SPECIFICATION

CONNECTORS, PLUGS AND RECEPTACLES, ELECTRICAL, WATERPROOF, QUICK DISCONNECT, HEAVY DUTY TYPE, GENERAL SPECIFICATION FOR

This supplement forms a part of MIL-DTL-22992F, dated XXXXXXXXXXX.

MS14054	-	Insert Arrangements, Electrical Connector, Size 28, Class L, 40 Amps.
MS14055	-	Insert Arrangements, Electrical Connector, Size 44, Class L, 100 Amps.
MS14056	-	Contacts, Electrical Connector Shielded Cable Applications, size 8.
MS14057	-	Insert Arrangements, Electrical Connector, Size 52, Class L, 200 Amps.
MS17342	-	Adapter, (Step-Up) Cable Sealing.
MS17343	-	Connector, Receptacle, Electrical, Wall Mounting.
MS17344	-	Connector, Plug, Electrical, Straight.
MS17345	-	Connector, Plug, Electrical, Cable Connecting (Female).
MS17346	-	Connector, Receptacle, Electrical, Box Mounting.
MS17347	-	Connector, Receptacle, Electrical, Jam Nut.
MS17348	-	Connector, Receptacle, Electrical, Jam Nut (Box).
MS17349	-	Cover, Protective, Electrical Connector, Receptacle.
MS17350	-	Cover, Protective, Connector, Plug.
MS18062	-	Connector, Receptacle, Dummy Stowage.
MS23747	-	Gland, Cable Sealing, Class L.
MS90555	-	Connector, Receptacle, Electrical, Wall Mounting, Class L (Power Source Receptacle).
MS90556	-	Connector, Plug, Electrical, Straight, Class L.
MS90557	-	Connector, Plug, Electrical, Cable Connecting (Without Coupling Ring), Class L.
MS90558	-	Connector, Receptacle, Electrical, Wall Mounting (With Couplin Ring), Class L, (Equipment Receptacle).
MS90561	-	Grip, Cable, Woven, Strain Relief, Axial.
MS90563	-	Cover, Electrical Connector, Receptacle, Class L.
MS90564	-	Cover, Electrical Connector, Plug, Class L.
MS90565	-	Insert Arrangements, Electrical Connector, Size 32, Class L, 60 Amps.
MS90567	-	Insert Arrangements, Electrical Connector, Size 48, Class L, 150 Amps.
MS90569	-	Adapter, (Step-Up) Cable Sealing and Gripping.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4719-099)

Review activities:
Army - AR, MI
Navy - AS, MC, OS, SH, YD
Air Force - 19

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719.

INCH-POUND

MIL-DTL-22992F
DRAFT
SUPERSEDING
MIL-C-22992E
8 March 2000

DETAIL SPECIFICATION

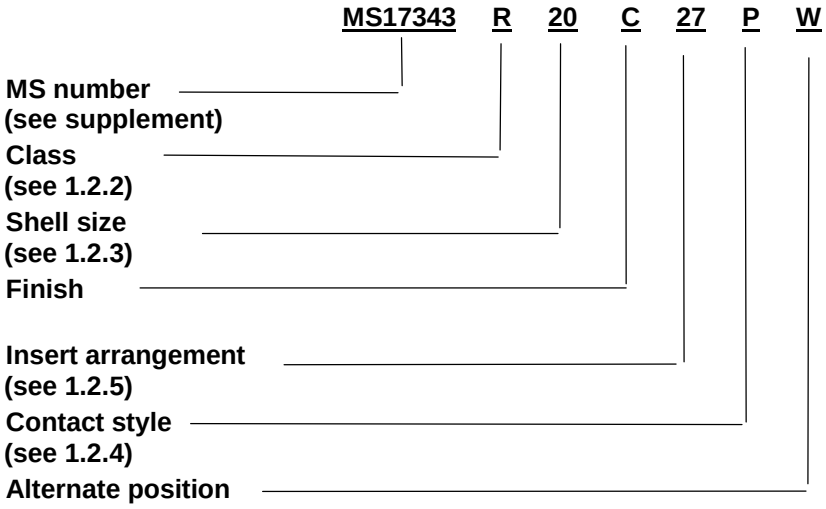
CONNECTORS, PLUGS AND RECEPTACLES, ELECTRICAL, WATERPROOF, QUICK DISCONNECT, HEAVY DUTY TYPE, GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1 SCOPE

1.1 SCOPE. This specification covers multicontact, heavy duty, quick disconnect, waterproof, electrical plug and receptacle connectors and associated accessories for electronic and electrical power and control circuits. Connectors are rated for -55°C to +125°C (see 6.1).

1.1.1 Marking. The launcher receptacle, store receptacle, buffer plug unit, and accessories should be permanently marked with the manufacturer's name or trademark, date code, and the following information, as applicable. Stamping should be in accordance with MIL-STD-1285 where space permits. The following is an example of the Part or Identifying Number (PIN):



Comments, suggestions, or questions on this document should be addressed to Defense Supply Center Columbus, ATTN: VAI, P.O. Box 3990, Columbus OH 43216-5000 or emailed to circularconnector@dscc.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at http://www.dodssp.daps.mil.

1.2 Classification. Electrical connectors and accessories shall be of the follohing types, classes, si:es. styles and arrangements, as specified (see 3.1)

1.2.1 Types.

1.2.1.1 Plugs.

(a) Cable connecting plug (without coupling ring).
(b) Straight plug.

1.2.1.2 Receptacles.

(a) Wall mounting receptacle.
(b) Box mounting receptacle.
(c) Jam nut receptacle.
(d) Jam nut receptacle (box).
(e) Wall mounting receptacle (with coupling ring - class L only).

1.2.1.3 Accessories.

(a) Covey, protective, receptacle (types A and B).
(b) Cover, protective, plug.
(c) Receptacle, dummy stowage.
(d) Adapter, straight thru, cable sealing
Style I (types A and B)
Style 2 (types A and B)
(e) Adapter, step down, cable sealing
Style 1 (types A and B)
Style 2 (types A and B)
(f) Adapter, step up, cable sealing
Style 1 (types A and B)
Style 2 (types A and B)

1.2.2 Classes.

Class C - Pressurized.
Class J - Pressurized with grommet.
Class L - Arc quenching (see 6.3.1 and appendix)
Class R - Environment resisting.

1.2.3 Sizes. Connector and accessory sizes shall be as specified (see 3.l).

1.2.4 Arrangements, connectors. Arrangements shall be as specified (see 3.1)

1.2.5 Styles.

Style P - Inserts containing pin contacts.
Style S - Inserts containing socket contacts.

~~1.3 Military part number. Connectors covered by this specification shall be as sped xed see 3.1)~~

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for addition information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

~~FEDERAL~~

~~QQ-N-290 - Nickel Plating (Electrodeposited).~~
~~QQ-P-4l6 - Plating, Cadmium (Electrodeposited)~~
~~QQ-S-365 - Silver Plating, Electrodeposited. General Requirements for.~~

MILITARY

MIL-C-915 - Cable and Cord, Electrical, For Shipboard Use, General Specification for.
MIL-D-1000 - Drawings, Engineering and Associated Data
~~MIL-R-3065 - Rubber, Fabricated Products~~
MIL-C-3432 - Cable and Wire, Electrical (Power and Control, Semi-flexible, Flexible, and Extra-flexible, 300 and 600 Volts)
MIL-H-5606 - Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance.
MIL-S-7742 - Screw Threads, Standard, Optimum Selected Series General Specification for.
MIL-F-13777 - Cable, Special Purposes, Electrical, General Specification for.
MIL-I-14072 - Finishes for Ground Signal Equipment.
~~MIL-I-17214 - Indicator, Permeability, Low-Mu (Go-No-Go)~~
MIL-L-23699 - Lubricating Oil, Aircraft Turbine Engines, Synthetic Base
MIL-G-23827 - Grease, Aircraft and Instrument, Gear and Actuator Screw
~~MIL-C-26074 - Coatings, Electroless Nickel, Requirements for~~
MIL-C- 39029 - Contacts, Electrical connector, General Specification for.
MIL-C- 39029/48 - Contacts, Electrical Connector, Pin, Crimp Removable, (for MIL-C-22992 Class L Connectors).
MIL-C-39029/49- Contacts, Electrical Connector, Socket, Crimp Removable, (for MIL-C-22992 Class L connectors)."
~~MIL-G-45204 - Gold Plating, Electrodeposited~~
~~MIL-C-45662 - Calibration System Requirements~~
MIL-DTL-55330 - Connectors, Electrical and Fiber Optic, Packaging of..

STANDARDS

~~MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.~~
MIL-STD-202 - Test Methods for Electronic and Inspection by attributes.

~~MIL-STD-454 - Standard General Requirements for Electronic Equipment.~~
MIL-STD-810 - Environmental Engineering Considerations and Laboratory Tests.
MIL-STD-889 - Dissimilar Metals.
MIL-STD-1285 - Marking of Electrical and Electronic Parts
~~MIL-STD-1344 - Test Methods for Electrical Connectors~~
~~MIL-STD-1353 - Electrical Connectors and Associated hardware, Selection and use of~~
MIL-STD-1373 - Screwthread, Modified. 6O° Stud, Double
MIL-STD-1651 - Insert Arrangements for MIL-C-5015, MIL-C-22992 (Classes C, J, and R), and MIL-C-83723 (Series II) Electrical Connectors.
~~MS3197 - Gage Pin, for Socket Contact Engagement Test.~~
MS3348 - Contact Bushing, Electric, Wire Barrel.
~~MS33681 - Insert arrangements, MIL-C-50l5 Electric Connector, Site 12~~
~~MS33682 - Insert Arrangements, MIL-C-5015 Electric Connector, Site 14~~
~~MS33683 - insert Arrangements, MIL-C-5015 Electric Connector, Size 16~~
~~MS33684 - Insert Arrangements, MIL-C-50l5 Electric Connector, Size 15~~
~~MS33685 - Insert Arrangements, MIL-C-50l5 Electric Connector, Size 20~~
~~MS33686 - Insert Arrangements, MIL-C-5015 Electric Connector. Size 22~~
~~MS33687 - Insert Arrangements, MIL-C-50l5 Electric Connector, Size 24~~
~~MS33688 - Insert Arrangements, MIL-C-5015 Electric Connector, Size 28~~
~~M533689 - Insert Arrangements, MIL-C-50l5 Electric Connector, Size 32~~
~~MS33690 - Insert Arrangements, MIL-C-5015 Electric Connector, Size 36~~
~~MS33691 - Insert Arrangements, MIL-C-5015 Electric Connector, Site 40.~~

(Copies of these documents are available online at http://assist.daps.dla.mil/quicksearch/ or http://www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 Other publications The following documents form a part of this specification to the extent speci-ied herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

NCSL Z540.1 - Laboratories, Calibration, And Measuring And Test Equipment.

(Application for copies should be addressed to the American National Standards institute, 25 West 43rd Street, 4th Floor, New York, New York 10036.)

ASTM INTERNATIONAL

ASTM A342 - Materials, Feebly Magnetic, Permeability Of.
ASTM B700 - Standard Specification for Electrodeposited Coatings of Silver for Engineering Use.
ASTM D2000 - Rubber Products In Automotive Applications.

(Copies of these documents are available at http://www.astm.org or ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, Pennsylvania 19428-2959.)

ELECTRONIC INDUSTRIES ALLIANCE (EIA)

EIA-364	**-**	**Electrical Connector/Socket Test Procedures Including Environment Classifications –Revision of EIA-364-c.**

(Copies of these documents are available online at http://www.eia.org or from the Electronic Industries Alliance, Technology Strategy & Standards Department, 2500 Wilson Boulevard, Arlington VA 22201.)

SAE INTERNATIONAL

SAE-AMS-QQ-N-290	**-**	**Nickel Plating (Electrodeposited).**
SAE-AMS-QQ-P-416	**-**	**Plating, Cadmium (Electrodeposited).**
AMS - 4027	-	Aluminum Alloys, Sheet and Plate (AA-6061-T6).
SAE-AMS-C-26074	**-**	**Coatings, Electroless Nickel, Requirements For.**
SAE-AS31971	**-**	**Pin, Gage, For Socket Contact Engagement Test.**

(Copies of these documents are available at http://www.sae.org or SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-001.)

NATIONAL BUREAU OF STANDARDS

H-28 HANDBOOK - Screw-Thread Standards for Federal Services.

(Applications for copies should be addressed to: Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.)

INSULATED POWER CABLE ENGINEERING ASSOCIATION PUBLICATION.

IPCEA Publication No. S-19-81 **(NEMA Pub. No. WC-3-1969)**- Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

(Application for copies should be addressed to the Insulated Power Cable Engineers Association, 192 Washington St, Belmont, MA 02178)

3. REQUIREMENTS

3.1 Military standards (MS). The individual item requirements shall be as specified herein, and in accordance with the applicable military standards. In the event of any conflict between requirements of this specification and the military standards, the latter shall govern.

3.2 Qualification. The connectors, adapters, protective covers, and stowage receptacles furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set far opening of bids (see 6.4).

3.3 Materials. The materials shall be as specified herein. However, when a definite material is not specified, a material shall be used which will enable the connectors and accessories to meet the performance requirements of this specification. Acceptance or approval of any constituent material shall not be construed as a guaranty of the acceptance of the finished product.

3.3.1 Nonmagnetic materials. All component parts shall be made from materials which are classe as nonmagnetic (see 3.5).

~~3.3.2 Dissimilar metals. When dissimilar metals are used in intimate contact with each other, protection against electrolysis and corrosion shall be provided The use of dissimilar metal in contact, which tends toward active electrolytic corrosion (particularly brass, copper, or steel used in contact with aluminum or aluminum alloy), is not acceptable. However, metal spraying or metal plating of dissimilar base metals to provide similar or suitable abutting surfaces is permitted. Dissimilar metals shall be as defined in 6.6 through 6.6.4 inclusive, and table XI.~~

3.3.2 Dissimilar metals. When dissimilar metals are used in intimate contact with each other, protection against galvanic corrosion shall be provided. The use of dissimilar metals in contact, which tend toward active galvanic corrosion (particularly brass, copper, or steel used in contact with aluminum or aluminum alloy) is not acceptable. However, metal plating of dissimilar base metals to provide similar or suitable abutting surfaces is permitted. The use of dissimilar metals separated by a suitable insulating material is also permitted. Dissimilar metals and compatible couples are defined in MIL-STD-889.

3.3.3 Shells and associated hardware. Shells, covers, coupling rings, stowage receptacles, and cable sealing adapters shall be fabricated from high grade aluminum alloys.

3.3.4 Insert materials.

3.3.4.1 Resilient insert materials (classes C, J, and R). Resilient inserts shall be molded of a suitable dielectric material and shall conform to **ASTM D2000** ~~MIL-R-3065~~. The durometer hardness number shall be from 70 to 90.

3.3.4.2 Plastic insert materials (class L). Plastic inserts shall be fabricated from a plastic dielectric and shall be capable of meeting the performance requirements of the class L connectors.

3.3.5 Contacts. Contact basis material (except thermocouple contacts) shall be made of a suitable conductive copper alloy. Accessory members of the socket contact may be made of a suitable corrosion resistant material. Thermocouple contacts shall be made of suitable thermocouple combinations as required.

3.3.6 Grommets and seals. Grommets and seals shall be made of materials conforming to the applicable requirements of **ASTM D2000** ~~MIL-R-3065~~, and as specified (see 3 1).

3.3.7 Finish

3.3.7.1 Connectors and accessories Connectors, cable sealing adapters, protective covers and stowage receptacles shall be finished with an electrically conductive or electrically nonconductive finish as specified (see 3.1).

3.3.7.1.1 Conductive finish (C). The conductive finish shall be nickel plated in accordance with **SAE-AMS-QQ-N-290** ~~QQ-N-290~~ or **SAE-AMS-C-26074** ~~MIL-C-26074~~ to a thickness of 0.0002-inch minimum, followed by cadmium plate in accordance with type II of **SAE-AMS-QQ-P-416** ~~QQ-P-416~~. to a thickness of 0.0001-inch minimum. The resulting finish shall be olive drab (light to dark) an color and shall be electrically conductive. Components of corrosion resistant materials need not be plated.

3.3.7.1.2 Nonconductive finish (N) (classes C, J, R, and 28 Vdc class L only). The nonconductive finish shall be a hard, oxide coating conforming to finish E-516 of MIL-F-l4072. The resulting finish shall be from gray to black in color and be electrically nonconductive. Thickness of the coating shall be approximately 0.001-inch Components of corrosion resistant materials need not be coated.

3.3.8 Contact plating.

~~3.3.8.1 Size 12 and smaller. All size 12 and smaller contacts shall be gold plated in accordance with type II, grade C, class 1 far pin contacts and type I, grade A, class 1 for socket contacts, of MIL-G-45204. Copper underplating shall be used. Accessory members of the socket contacts (spring members, etc), as applicable, Shall be of corrosion resistant material or suitably protected from corrosion.~~

3.3.8.1 **Copper alloy contacts, classes C, J, and R. All contacts shall be silver plated to a thickness of .0002 inch minimum in accordance with ASTM B700 ~~QQ-S-365~~. Size 8 and large contacts are to be nickel underplated .00005 inch minimum in accordance with SAE-AMS-QQ-N-290 ~~QQ-N-290~~.** Accessory members of the socket contacts (spring members, etc) as applicable, shall be of corrosion resistant material or suitably protected from corrosion.

3.3.8.2 Thermocouple contact. Thermocouple contacts, except alumel and chromel, shall be cadmium plated in accordance with **SAE-AMS-QQ-P-416** ~~QQ-P-416~~ or otherwise suitably protected from corrosion. Accessory members of the socket contacts (spring members, etc), as applicable, shall be of corrosion resistant material or suitably protected from corrosion.

3.3.8.3 Class L. Plating of contacts for class L connectors shall be in accordance with MIL-C-39029.

3.3.9 Fungus-resistant. Materials used in the construction of these connectors shall be fungus inert (see 4.1.2).

3.4 Design and construction. Connectors, adapters, protective covers and stowage receptacles shall be designed and constructed as specified (see 3.1).

3.4.1 Contact design. Contact design shall be such that neither the pins nor the sockets installed in the connector will be damaged by any possible twisting or forcing during the process of mating.

3.4.1.1 Pin engaging end (classes C, J, and R). The entering end of pins shall be formed with a spherical radius approximately one-half the diameter of the pin, allowing for a flat in the center of the spherical development. The diameter of the blunt end shall be in accordance with dimension K as shown an figure 1. Position of pin engaging end shall be an accordance with dimension H as shown in figure 1.

3.4.1.2 Socket engaging end. The entering end of the socket contact shall be rounded or chamfered to allow for directing and centering of the entering pin The socket contact shall provide the spring action for maintaining the contacting pressure between the pin and socket.

3.4.1.2.1 Classes C, J and R. Size 12 and smaller socket contacts shall be designed to exclude the entrance of a pin 0.005 inch larger than the allowable maximum diameter of a mating pin. The point of spring engagement of the socket contact with a nominal diameter mating square ended test pin shall not exceed the values shown an column J, (see figure 1) when measured from the end of the shell.

3.4.1.2.2 Class L. The point of spring engagement of the socket contact with a nominal diameter mating square ended test pin shall not exceed the values shown on the applicable military standard (see 3.1), when measured from the end of the shell.

3.4.1.3 Solder cups (classes C, J, and R). The location of the solder cup shall be such that normal soldering operations shall not impair any part of the assembly. The solder cup shall be as indicated in figure 1 and the applicable MS (see 3.1). All solder cavities shall be designed so that liquid solder will not escape during normal soldering operations and interfere with the float of the contact, and constructed so liquid solder in the solder cup cannot leak through to the front of the socket and prevent insertion of the pin.

3.4.1.4 Dimensions. Contact dimensions of class C, J, and R shall conform to figure 1. Contact dimensions of class L shall conform to ~~MS90559 or M90560~~ **MIL-C-39029/48 or MIL-C-39029/49**. The illustrations in figure 1 are for dimensional purposes only and are not intended to indicate design.

3.4.1.5 Contact Insertion and removal.

3.4.1.5.1 Classes C, J, and R. Pin and socket contacts, sizes 1/0, 4, and 8. may be designed so that they can be readily removed from their inserts for soldering to their conductors and readily assembled after the soldered connection has been made. Contacts, sizes 12 and 16, shall be rigidly mounted in their inserts. Inserts containing non-removable contacts shall not be subject to damage by soldering under an acceptable soldering process.

3.4.1.5.2 Class L. Pin and socket contacts shall be capable of being readily assembled in the connectors after they have been attached to their conductors. They shall also be capable of being removed from the connectors with the aid of removal tools as specified on MS90562. The inserts may be removed from their shell to allow the removal of the contacts.

3.4.1.6 Contact bushings. When required for insert arrangements as specified in section 70 of the appendix to MIL-C-22992, applicable contact bushings conforming to MS3348 shall be supplied with the contacts.

3.4.2 Insert design and construction. Inserts shall be positively secured with respect to the shell.

3.4.2.1 Classes C, J, and R. Inserts shall be supplied rotated from the normal position, if specified. The degree and direction of rotation shall be as specified (see 3.1). Inserts shall be of voidless construction and shall be non-removable from their shells.

3.4.2.2 Class L. Inserts shall be supplied rotated from the normal position, if specified. The degree of rotation shall be as specified on the MS (see 3.1). The socket inserts shall be of hard faced and limited (closed) entry design. Inserts may be removable from their shell. However, pin and socket inserts shall not be interchangeable within a connector. The pin insert interface shall be of a resilient material.

3.4.2.3 Insert arrangements. Insert arrangements shall be in accordance with MIL-STD-1651 for classes C, J, and R and MS14054, MS14055, MS14057, MS90565 or MS90567 for class L connectors as specified (see 3.1) (Insert arrangements utilizing 12S, 14S, and 16S are not applicable).

3.4.2 4 Contact alignment. To facilitate self-alignment of mating contacts, inserts for socket contacts shall be designed so that individual contacts will have an overall sideplay of 0.008 minimum.

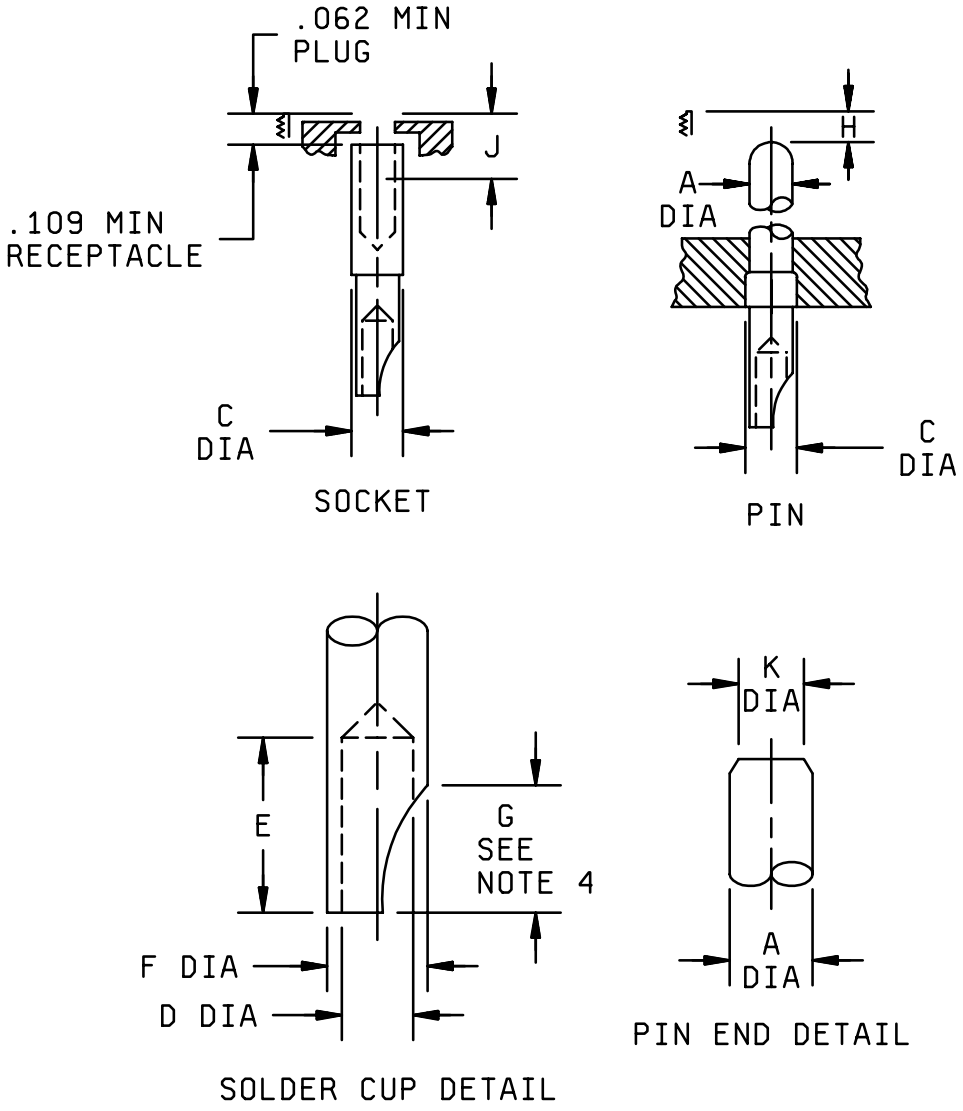


FIGURE 1. Socket and pin, classes C, J and R.

Contact controlled dimensions						
Contact size	A ± .001 (see note 4)	C Max	D Min	E +.063 - .000	F (see note 5)	
					Min	Max
16	.0625 (1.59)	.127 (3.23)	.069 (1.75)	.250 (6.35)	.096 (2.44)	.116 (2.95)
12	.094 (2.39)	.190 (4.83)	.112 2.84	.375 (9.53)	.180 (3.30)	.150 (3.81)
8	.142 (3.61)	.310 (7.87)	.205 3.21	.500 (12.70)	.243 (6.17)	.259 (6.58)
4	.225 (5.72)	.441 (11.20)	.328 (8.33)	.625 (15.88)	.370 (9.40)	.397 (10.08)
0	.357 (9.07)	.597 (15.16)	.464 (11.79)	.625 (15.88)	.510 (12.95)	.550 (13.97)

Contact controlled dimensions							
Contact size	H				J max (see note 6)		K
	Plug		receptacle				
	Min	Max	Min	max	Plug	Receptacle	
16	.227 (5.77)	.307 (7.80)	.294 (7.47)	.354 (8.99)	.281 (7.14)	.328 (6.33)	.031 Max (.79)
12	.062 (1.57)	.132 (3.35)	.109 (2.77)	.179 (4.55)	.375 (9.53)	.422 (10.72)	.062 Max (1.57)
8	.062 (1.57)	.132 (3.35)	.109 (2.77)	.179 (4.55)	.375 (9.53)	.422 (10.72)	.083 Max (2.11)
4	.062 (1.57)	.132 (3.35)	.109 (2.77)	.179 (4.55)	.375 (9.53)	.422 (10.72)	.100 ± .010 (2.54) (.25)
0	.062 (1.57)	.132 (3.35)	.109 (2.77)	.179 (4.55)	.281 (7.14)	.328 (8.33)	.232 ± .010 (5.89) (.25)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25. 4 mm.
3. Metric equivalents are in parentheses.
4. Dimension A is measured after plating.
5. These values are used for calculating mechanical spacing between contacts and between contacts and shell.
6. Dimension J represents the, distance between the end of the shell and the point at which the mating pin engages socket contact spring.
7. G dimension limited to a maximum of 2/3 of E dimension, applicable to size 16 and 12 only. Cutout Is optional for sizes 1, 0, 4 and 8.

FIGURE 1. Socket and pin, classes C, J and R - Continued.

3.4.3 Coupling connection. Plugs shall be connected or coupled to their mating receptacle by means a coupling rings. The coupling threads shall be as specified (see 3.1). All coupling rings shall be knurled or fluted.

3.4.3.1 Classes C, J and R. Coupling rings shall be designed so that the pin and socket contacts will fully engage or disengage as the ring is respectively tightened or loosened. The coupling ring shall jack against the adapter during connector unmating. Coupling shall occur in the following sequence polarization and engagement of shells, engagement of coupling threads, engagement of contacts. The uncoupling sequence shall be in the reverse order.

3.4.3.2 Class L. The coupling of class L connectors shall occur in the following sequence: Polarization and engagement of the mating shells; engagement of the grounding and neutral contacts; of .019 inch minimum effective engagement of the phase contacts; and engagement of the coupling threads. The uncoupling sequence shall be in reverse order.

3.4.4 Polarization. Polarization of the plug with its receptacle shall be accomplished by five integral keys on the male connector and matching keyways on the female connector and shall be designed so that it cannot possibly interfere with the functioning of the coupling threads. The integral keys and keyways shall render the mating of the plug and receptacle in more than one position impossible. The mating keys and keyways shall be substantially rectangular an cross section.

3.4.4.1 Class L Class L shells shall be supplied with the main key (or keyway) rotated from the normal position, as specified (see 3.1). **The relationship between the four small minor keys (or keyways) and the centerline through the main keyway in the nominal position shall remain constant.**

3.4.5 Screw threads. Coupling threads of connectors, stowage receptacles and protective covers shall be either 1P- 2L-DS or 1428P- .2857L-DS, class 2A or 2B of MIL-STD.1373, as specified (see 3.1). All adapter threads shall conform to Handbook H-28 and shall be as specified (see 3.1). Screw threads shall be checked after plating by means of ring and plug gages only, in accordance with Handbook H-28. Out-of-roundness beyond the tolerances of M1L-S-7742 or MIL-STD-1373 as not objectionable. if the threads can be checked without forcing of the thread gages. Screw threads may be relieved provided such relief does not interfere with the proper performance of the screw threads.

3.4.5.1 Lubrication. All class 2B threads shall be coated with a lubricant conforming to MI-G-23827.

3.4.6 Class J connectors. Class .J connectors shall be provided with a grommet to support individual conductors and shall be held in position by the appropriate cable sealing adapter (style 2).

3.4.7 Class L connectors Class L grounding connectors shall have all system **grounding** contacts electrically connected to their shells without interfering with proper engagement or performance of the connectors. All shells and associated hardware of grounding assemblies shall be of the conductive (C) finish, and only key (or keywav) positions 4, 5, or 6 as applicable, shall be used. All shells and hardware of nongrounding assemblies shall have a nonconductive (N) finish.

3.4.8 Accessories

3.4.8.1 Adapters, cable sealing. Adapters shall be as specified in MS17340 through MS17342 and MS90568 through MS90571. The adapters shall not seize the coupling ring and shall be designed for bottoming out when assembled to the connector.

3.4.8.1.1 Classes C, J, and R. Adapters shall be capable of sealing on cable conforming to MIL-C-915 or MIL-C-l3777 and shall be provided with a permanently attached protective cover.

3.4.8.1.2 Class L. Adapters shall be capable of sealing on cable or wire conforming to MIL-C-3432 or ~~IPCEA Publication No. S-19-81~~ **(NEMA Pub. No. WC-3-1969)** (see 3.1).

3.4.8.2 Protective covers. Protective covers shall be assembled to the connector as specified in MS17349, MS17350, MS90563, and MS90564.

3.4.8.3 Storage receptacles. Stowage receptacles shall be as specified an MS18062.

3.4.8.4 Cable sealing gland (class L). Cable sealing glands shall be as specified an MS23747.

3.4.8.5 Cable grip (Class L). The cable grip shall be is specified in MS90561.

3.5 Permeability (mu). When the connector assembly less cable grip or accessory is tested specified in 4.6 2, the relative permeability shall be less than 2.0.

3.6 Shell-to-contact resistance (class L. grounding). When connectors are tested an accordance bath 4.6.3, **the resistance between each grounding contact and the shell, shall cause a voltage drop not greater than 10 millivolts.**

3.7 Contact resistance. When connectors are tested as specified in 4 6.4, the resistance of mated pin and socket contacts, shall be such that the potential drop at the test current specified an table I shall be not greater than the values specified.

3.8 Dielectric withstanding voltage. When connectors are tested as specified an 4.6.5, connectors shall be capable of withstanding the applicable voltages shown an table II without flashover or breakdown.

3.9 **Temperature cycling**. When connectors ate tested as specified an 4.6.6, connectors and cable sealing adapters shall show no evidence of physical damage.

3.10 Air leakage (class C, J and L connectors and protective covers). When connectors and protective covers are subjected to the air leakage, test of 4.6.7, the air leakage rate shall be not greater than 1 atmospheric cubic inch of air per hour.

TABLE I. Contact resistance.

Contact size	Test current (amperes)		Potential drop (millivolts, max)	
	class		Initial	After Corrosion
	C, J, and R			
16	20	---	25	35
12	35	---	20	30
8	60	---	12	25
6	---	40	8	18
4	100	---	10	20
4	---	60	8	18
1/0	200	---	10	20
1/0	---	100	9	19
2/0	---	150	10	20
4/0	---	200	11	22

TABLE II. Dielectric withstanding voltage.

Service rating	Sea level test voltage Minimum (vac rms, 60 Hz)
Inst.	1,000
A	2,000
D	2,800
E	3,500
B	4,500
C	7,000

3.11 Contact retention. When contacts are tested as specified in 4.6.8, they shall be capable of withstanding the axial loads shown in table III.

TABLE III. Contact retention loads.

Contact size	Axial load (lbs. min)
16	10
12	15
8	20
6	20
4	25
1/0	35
2/0	35
4/0	35

3.12 Insert retention. When insert assemblies ate tested as specified an 4.6.9, they shall retain their normal position in the connector shell for a minimum of 5 seconds at the pounds force per square inch (lb_f in^2) pressure specified in table IV.

TABLE IV. Insert retention test pressures.

Size	Gage pressure (lb_f / in^2)
12	150
14 through 18	100
20 through 22	75
24 through 23	60
32 through 52	45

3.13 Insulation resistance. When connectors are tested as specified an 4.6.10, the initial insulation shall be not less than 5,000 megohms.

3.14 Humidity. When connectors are tested as specified an 4.6.11, they shall meet the following requirements.

Insulation resistance	
During the 10th cycle ----------	10 megohms minimum
After 24-hour drying period ----------	1,000 megohms minimum
Dielectric withstanding voltage ----------	As specified in table II

3.15 Durability. Counterpart connectors shall show no mechanical or electrical defects detrimental to the operation of the connector after 100 cycles of coupling and uncoupling in accordance with 4.6.12. The connectors shall be subjected to 50 cycles before and after the corrosion test. No lubricant shall be applied prior to, during, or after the test.

3.16 Salt Spray (corrosion). When tested as specified in 4.6.13, there shall not be sufficient corrosion to interface with the mating of the connectors or accessories. Exposure to salt-laden atmosphere shall not cause corrosion or exposure of the basic metal on any plated metal part such as shells, adapters, coupling rings or the individual pin and socket contacts submitted which as detrimental to their mechanical or electrical performance.

3.17 Cable pull-out. When connectors are tested as specified an 4.6.14, test cables (see 4.4.3) shall not pull-out when the loads given in table V are applied, nor shall the slippage exceed 1/8 inch.

TABLE V. Cable Pull-out test loads.

Weight of cable Per 1,000 ft. (pounds)	Min required pull-out force (pounds)	
	Without cable grip	With cable grip
Up to 350	50	75
351 – 725	75	150
726 – 1,000	100	200
over 1,000	125	250

3.18 Vibration. When the wired connector assembly is tested as specified an 4.6.15, there shall be no cracking, breaking, or loosening of parts, nor shall there be a loss of electrical continuity in excess of 10 microseconds.

3.19 Drop (class L). When connectors are tested as specified an 4.6.16, there shall be no breaking or cracking of inserts, bending of pins nor any other damage which prevents the connectors from being mated or renders them unfit to continue further testing. Any chipping of the inserts which affects its polarization or retention in the shell shall be considered a failure.

3.20 High-impact shock. When connectors are tested as specified an 4.6.17, there shall be no evidence of damage or discontinuity of current in excess of 10 microseconds. The connectors or accessories shall not loosen or become disengaged.

3.21 Water immersion When tested an accordance with 4.6.18, the receptacle inserts and panel seals shall show no leakage. There shall be no evidence of water leakage at the connector interface of mated connectors nor in the cable adapters of the mated or unmated plugs. At the end of 4 hours while the mated plugs are still immersed, the insulation resistance shall be 100 megohms minimum. After removal of unmated connectors from the immersion tank, the insulation resistance shall be 100 megohm minimum.

3.22 Heat rise (class L). When connectors are tested as specified in 4.6.19, the temperature rise of the individual contact terminals shall be not more than 30°C (54°F) above ambient temperature. There shall be no evidence of physical damage.

3.23 Arc rupture (class L). When connectors are tested as specified an 4.6.20, they shall withstand the test current an table VI. There shall be no electrical nor mechanical damage which would prevent the connectors from being fully mated and unmated by hand. Flexible spring members of contacts shall not weld together Contacts shall maintain shape, and there shall be no excessive vaporization of metal or contact dastorion. Following the test, the connectors shall meet the following requirements:

Insulation resistance ---------- 100 megohms Callus
Dielectric withstanding voltage ---------- As specified an table II

TABLE VI. Test current for arc rupture (class L only).

Contact	Rated current (amperes)	Test current (amperes)
6	40	60
4	60	90
1/0	100	150
2/0	150	225
4/0	200	300

3.24 fluid immersion. When connectors are tested as specified in 4.6.21, they shall mate properly with their counterpart connectors and withstand one-half the applicable voltage stipulated an table II.

3.25 Tensile (Protective cover). When the protective covers are tested as specified an 4.6.22, they shall withstand a tensile load of 25 pounds minimum.

3.26 Contact engagement and separation forces. When socket contacts are tested as specified in 4.6.23, they shall comply with the contact engagement and separation forces in table VII.

TABLE VII. Contact engagement and separation forces.

Contact size	Force (pounds)	
	Maximum	Minimum
16	3.0	0.25
12	5.0	0.50
8	10.0	0.75
6	10.0	0.75
4	15.0	1.00
1/0	20.0	2.00
2/0	20.0	2.00
4/0	20.0	2.00

3.27 Probe damage (contacts). When size 16 sockets are tested as specified in 4.6.24, the contact engagement and separation forces shall be 3.0 maximum and 0.25 minimum.

3.28 Abrasion

3.28.1 Nonconductive finish. Those areas of the test panel which have been subjected to the test specified in 4.6.25.1, shall not show basis metal exposure and shall be dielectric to the extent that 1/16-inch diameter ball contacts, pressed with 50-gram load against a flat section, shall not pass current with the application of a 6 volt potential. Following the test, salt spray (corrosion) shall meet the requirements of 3.16.

3 28.2 Conductive finish. Those areas of the test panel which have been subjected to the test specified in 4.6.23.2, shall not show basis metal exposure. Following the test, salt spray (corrosion) shall meet the requirements of 3.16.

~~3.29 Marking. Each connector, adapter, protective cover and stowage receptacle shall be legibly and permanently marked on the shell, body, or coupling ring in accordance with MIL-STD-1285. The covers shall be marked with the MS part number when procured as a separate item. In addition, class L connectors shall be marked with the voltage, phase, number of wires, frequency, and current rating with location optional, in accordance with Occupational Safety and Health Act (OSHA) Example 120/24OV-1(0 or PH)-3W-60H$_2$-60A~~

3.29 Marking of inserts. Inserts shall be marked as specified (see 3.1)

3.30 Contact destinations. Contacts shall be as specified (see 3.1). Letters shall remain legible upon completion of all tests specified under 4.4.2. Letters shall be either raised or flush and shall be arranged to avoid confusion between contacts. All letters shall appear on the front of each insert and as many as practicable on the rear face. Lettering of socket inserts shall correspond with that of the mating pin insert.

3.31 Marking of contacts (class L). Marking of contacts for class L connectors shall consist of three color bands as specified (see 3.1). The location of the color bands shall be an accordance with the applicable military specifications as specified (see 3.1).

~~TABLE VIII. Color coding for pins, sockets, and wire barrels.~~

~~Contact Size~~	~~Wire barrel Size~~	~~Color band For contact size~~	~~Color band for wire barrel size~~
~~4/0~~	~~4/0~~	~~Yellow~~	~~Yellow~~
~~2/0~~	~~2/0~~	~~Orange~~	~~Orange~~
~~1/0~~	~~1~~	~~Blue~~	~~Black~~
~~4~~	~~4~~	~~Yellow~~	~~Yellow~~
~~6~~	~~6~~	~~Blue~~	~~Blue~~

3.32 Workmanship. Connectors, adapters, protective covers, and stowage receptacles shall be processed an such a manner as to be uniform in quality and shall be free from defects that will affect life, serviceabilitv, or appearance. There shall be no evidence of poor molding or fabricating, damaged or improperly assembled contacts, peeling or chapping of the plating and finish, excessive flash which would indicate improper molding, nicks and burrs to metal surfaces.

~~3.31 Part number chances. Changes an manufacturer's part numbers shall be governed by the drawing number requirement of MIL-D-l000.~~

4. VERIFICATION

4.1 Responsibilitv for inspection. Unless otherwise specified in the contract or purchase order, the supplier as responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the supplier. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be an accordance with **NCSL Z540-1** ~~MIL-C-45662~~.

4.1.2 Fungus resistance certification. Certification of method 508.4 of MIL-STD-810 is required (see 3.3.9).

4.2 Classification of inspections. The inspections specified herein are classified as follows:

(a) Qualification inspection (see 4 4).
(b) Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, inspections required by this specification shall be made under any combination of conditions within the following ranges. Any specified condition shall not affect the other two ambient ranges:

Temperature - 15°C to 35°C.
Relative humidity - 30 to 80 percent.
Barometric pressure - 650 to 850 mm of mercury.

4.4 Qualification inspection. Qualification inspection shall be performed at a laboratory acceptable to the Government (see 6.4) on sample units produced with equipment and procedures normally used in production.

4.4.1 Qualification samples. Qualification inspection samples shall consist of the following.

(a) Two complete mating assemblies of straight plug and wall mounting receptacle, in each size of either class C or class R, having either the nonconductive (N) finish or conductive (C) finish, and containing the greatest complement of contacts for that size. If class R assemblies are provided and additional qualification is desired for class C and (or) class J connectors, them one additional mating assembly of straight plug and wall mounting receptacle in each size of either class C or class J containing the greatest complement of contacts for that stat shall be provided. Suitable adapters less protective covers shall also be provided.

(b) For class L, two complete mating assemblies of wall mounting receptacle (MS90555) and straight plugs (MS90556) and one complete mating assembly of a cable connecting plug without coupling ring (MS90557) and a wall mounting receptacle with coupling ring (MS90558) having the finish for which qualification is desired, and containing the greatest complement of contacts for that size. Three complete mating assemblies of M590555 and M590556 at qualification of MS90557 and M590558 is not desired or three complete mating assemblies at MS90557 and MS90558 if qualification of MS90555 and MS90556 is not desired. ~~Protective covers shall be provided for connectors subjected to the drop test.~~

(c) Connectors or accessories being qualified on the basis of differences from those initially qualified (see 4.4.1.1).

(d) Fifty-five socket contacts and five pan contacts of each size.

(e) Two panels 4 x 4 x 1/8 inch of AMS4027 aluminum (AA-6061-T6) finished with a conductive coating, representing normal piece part treatment as specified in 3.3.7.1.1 or finished with a nonconductive hard oxide coating representing normal piece part treatment as specified in 3.3.7.1.2 or one of each finish. Only one type panel of the appropriate finish, if qualification as desired for only one finish.

(f) **For classes C, J and R only**, two protective covers with mating connectors in sizes 12, 22 and 40, or two each of the shell sizes for which qualification as desired

(g) **For classes C, J and R only,** one stowage receptacle with mating connector in sizes 12, 22 and 40, or two each of the shell sites for which qualification as desired.

(h) **For classes C, J and R only,** one complete adapter assembly an each size and style other than that used in 4.4.1(a) shall be submitted for evidence of manufacture at the discretion of the Government qualifying activity.

TABLE VIII. Qualification inspection. 2/

Examination Or test	Requirement paragraph	Test paragraph	Connector assemblies	Cable adapters
Group 1 Visual and mechanical Examination	3 1, 3.3.1 to 3.3.9 incl, 3.4.1 to 3.4.8 incl, 3.29 and 3.30	4.6.1		
Permeability	3.5	4.6.2	X	X
Shell-to-contact Resistance grounding	3.6	4.6.3	X	
Contact retention (class L)	3.11	4.6.8	X	
Contact resistance	3.7	4.6.4	X	
Dielectric withstanding Voltage	3.8	4.6.5	X	
Tempareture cycling	3.9	4.6.6	X	X
Air leakage	3.10	4.6.7	X	
Contact retention (classes C, J, R)	3.11	4.6.8	X	
Insert retention	3.12	4.6.9	X	
Insulation resistance	3.13	4.6.10	X	
Humidity	3.14	4.6.11	X	X
Insulation resistance	3.14	4.6.10	X	X
Dielectric withstanding voltage	3.8	4.6.5	X	X
Durability	3.15	4.6.12	X	
Salt spray (corrosion)	3.16	4.6.13	X	X
Contact resistance	3.7	4.6.4	X	X
Cable pull-out	3.17	4.6.14	X	X

TABLE VIII. Qualification inspection - Continued. 2/

Examination Or test	Require ment paragraph	Test paragraph	Connector assemblies	Cable adopters	Protective covers	Stowage receptacles
Group 2 Visual and mechanical Examination	3 1, 3.3.1 to 3.3.9 incl, 3.4.1 to 3.4.8 incl, 3.29 and 3.30	4.6.1	X	X		
Vibration	3.18	4.6.15	X	X		
Pron(class L) 1/	3.19	4.6.16	X			
Dielectric withstanding voltage	3.8	4.6.5	X			
High impact shock 1/	3.20	4.6.17	X	X		
Water immersion	3.21	4.6.18	X	X		
Insulation resistance	3.21	4.6.10	X	X		
Heat rise (class L) 1/	3.22	4.6.19	X			
Arc rupture (class L) 1/	3.23	4.6.20	X			
Dielectric withstanding voltage	3.8	4.6.5	X			
Insulation resistance	3.23	4.6.10	X			
Fluid immersion	3.24	4.6.21	X	X		
Dielectric withstanding voltage	3.8	4.6.5	X	X		
Group 3 Visual and mechanical Examination	3 1, 3.3.1 to 3.3.9 incl, 3.4.1 to 3.4.8 incl, 3.29 and 3.30	4.6.1			X	X
Permeability	3.5	4.6.2			X	X
Water immersion	3.21	4.6.18			X	X
Insulation resistance	3.21	4.6.10			X	X
Salt spray (corrosion)	3.16	4.6.13			X	X
Tensile	3.25	4.6.22			X	
Air leakage	3.10	4.6.7			X	

TABLE VIII. Qualification inspection - Continued. 2/

Examination Or test	Requirement paragraph	Test paragraph	Separate contacts	Test panels
Group 4				
Contact engagement and Separation forces	3.26	4.6.23	X	
Probe damage (contacts Size 16 only)	3.27	4.6.24	X	
Contact engagement and separation forces (size 16 only)	3.26	4.6.23	X	
Salt spray (corrosion)	3.16	4.6.13	X	
Contact resistance	3.7	4.6.4	X	
Group 5				
Abrasion	3.28	4.6.25		X
Salt spray (corrosion)	3.16	4.6.13		X

1/ Qualification only.
2/ Tests indicated with an “X” are required.

4.4.1.1 Qualification of additional connectors or accessories. For connectors or accessories which differ only an detail from those submitted for qualification, the manufacturer’s test report need only provide inspection and test data necessary to validate the differences, with information on identical features for which no inspection or test was performed. Qualification for **nongrounded** assemblies may be granted by similarity if both type panels are used in qualification for **grounding** assemblies. Connectors of a less dense configuration than those hated on the qualified products list may be qualified by similarity provided samples are furnished to the qualifying activity.

4.4.1.2 Qualification of adapters, protective covers, and stowage receptacles. Manufacturers of adapters, protective covers, stowage receptacles or manufacturers who are not producing mating connectors to this specification shall submit data substantiating that qualification inspection of those items was performed with an appropriate number of approved electrical connectors as specified an 4.4.1, and an accordance with the applicable requirements of this specification, and an the order shown an table VIII.

4.4.2 Inspection routine. Qualification inspection of connectors, adapters, protective covers, and stowage receptacles shall consist of all the tests of this specification described under test methods of 4.6. The test program shall be as follows and in the order shown in table VIII.

(a) Mated connectors shall be subjected to the applicable tests listed in table VIII. Connectors for group 1 need not be wired unless otherwise specified by the individual test method paragraph Connectors for group 2 shall be wired and sealed Samples required ate as follows:

(1) Class C and R
Group 1 - One pair (either class)
Group 2 - One pair (same class as selected for group 1)

(2) Class L
Group 1 - One pair of MS90555 or MS90556, or as applicable (see 4.4.1(b)).
Group 2 - One pair of each of the following, or as applicable (see 4.4.1(b)).

a. MS90555 and MS90556
b. MS90557 and MS90558.

(b) One pair of each of the mated connector assemblies as described an 4.4.1(a) shall be subjected to the thermal shock test of 4.6.6 and the air leakage test of 4.6.7.

(c) Fifty-five socket contacts and five pin contacts of each size selected as described in 4.4.1(d), shall be subjected to the applicable tests listed in group 4 of table VIII, as follows.

(1) Fifty sockets shall be subjected to the test of 4.6.23 Following this test, the size 16 socket contacts shall be subjected to the test of 4.6.24 followed by a retest of 4.6.23.

(2) Remaining five pans and sockets shall be subjected to the tests of 4.6.13 and 4.6.4.

(d) One or two panels, as applicable, selected as described an 4.4.1(e), shall be subjected to the applicable tests listed an group 5 of table VIII.

(e) Protective covers and stowage receptacles, selected as described in 4.4.1(f) and 4.4.1(2), shall be subjected to the applicable tests in group 3 of table VIII.

4.4.3 Test cables. For the purposes of the tests and where applicable, classes C, J, and R connectors shall be wired with cable conforming to MIL-C-915 or MIL-C-13777 of construction to match the insert arrangement of the connector, as far as possible. Where required, suitable adapters shall be attached to the connectors to provide effective sealing around such cable. Solid resilient plugs may be used an lieu of test cables for sealing purposes for group B inspection. Class L receptacles shall be wired with single conductors that are within the limits specified on MS90555 and MS90558. Class L plugs shall be wired with cable conforming to MIL-C-3432 or IPCEA Publication No 5-19-81 as defined on the applicable insert arrangement standard. **Use the proper crimp bushings specified in table XVI.**

4.4.4 Failures One or more failures shall be cause for refusal to grant qualification approval.

4.4.5 Retention of qualification. To retain qualification, the supplier shall forward a report at 24-month intervals to the qualifying activity. The qualifying activity shall establish the initial reporting date. The report shall consist of:

(a) A summary of the results of the test performed for inspection of product for delivery, group A, indicating as a minimum the number of lots that have passed and the number that have failed. The results of tests of all reworked lots shall be identified and accounted for.

(b) A summary of the results of tests performed for qualification verification inspection, group B, including the number and mode of failures. The summary shall include results of all qualification verification inspection tests performed and completed during the 24-month period. If the summary of the test results indicates nonconformance with specification requirements, and corrective action acceptable to the qualifying activity has not been taken, action may be taken to remove the failing product from the qualified products last. If the summary of test results indicates conformance with the specification requirements for two successive 24-month periods, the next summary of test results shall be submitted in 36 months.

Failure to submit the report within 30 days after the end of each 24- or 36- month period may result in loss of qualification for the product. In addition to the periodic submission of inspection data, the supplier shall immediately notify the qualifying activity at any tame during the 24- or 36-month period that the inspection data indicates failure of the qualified product to meet the requirements of this specification

In the event that no production occurred during the reporting period, a report shall be submitted certifying that the company still has the capabilities and facilities necessary to produce the item. If during 2 consecutive reporting periods there has been no production, the manufacturer may be required, at the discretion of the qualifying activity, to submit a representative product of each type, grade, class. Etc. to testing an accordance with the qualification inspection requirements

4.5 Quality conformance inspection.

~~4.5.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection.~~

4.5.1 Inspection lot. An inspection lot shall consist of all connectors of the same shell size, covered by the same MS standards, produced under essentially the same conditions, and offered for inspection at one time

4.5.1.1 Group A inspection. Connectors shall be subjected to the individual tests shown in table VIIIa or group A inspection, the documentation and standard test conditions of EIA-364 do not apply.

TABLE VIIIa. Group A inspection.

Test	Requirement paragraph	Test paragraph
Visual and mechanical Examination 1/	**3.1, 3.3.1 to 3.3.9 incl, 3.4.1 to 3.4.8 incl, 3.29 and 3.30**	**4.6.1**
Insulation resistance (ambient temperature) 1/ 2/ 3/	**3.13**	**4.6.10**
Dielectric withstanding voltage 1/ 3/	**3.8**	**4.6.5**
Air leakage 1/ 3/	**3.10**	**4.6.7**
Contact engagement and separation forces 3/	**3.26**	**4.6.23**

1/ One hundred percent inspection.
2/ Test between two adjacent contacts and between two peripheral contacts and the shell.
3/ The contractor may use in-process controls for this requirement.

~~4.5.1.2.1. Sampling plan. Statistical sampling and inspection shall be in accordance with general inspection level II. The acceptable quality level (AQL) shall be 1.0 percent and 4.0 percent for major and manor defects, respectively Major and minor defects shall be as defined an MIL-STD-105.~~

4.5.1.1.1 Visual examination. Each connector shall be visually examined for completeness, workmanship, and identification requirements. Attention shall be given to those assemblies that require a gasket to determine the condition of that gasket. Gaskets missing, twisted, buckled, kinked, or damaged in any way shall be cause for rejection.

4.5.1.1.2 Rejected lots. If an inspection lot is rejected, the supplier may rework it to correct defects, or screen out the defective units, and resubmit for reinspection. Resubmitted lots shall be inspected using tightened inspection. Such lots shall be separate from new lots, and shall be clearly identified as reinspected lots.

~~4.5.2 Qualification verification inspection. Qualification verification inspection shall consist of group B inspection. Except where the results of this inspection shows noncompliance with the applicable requirements (see 4.5.2.1.5), delivery of products which have passed group A inspection shall not be delayed pending the results of this qualification verification inspection.~~

4.5.2 Group B Inspection. Group B inspection shall consist of the applicable tests specified in table VIIIb, and shall be made on sample units which have been subjected to and have passed the group A inspection. For group B, the documentation and standard test conditions of EIA-364 do not apply.

TABLE VIIIb. Group B inspection.

Test	Requirement paragraph	Method paragraph
Visual and mechanical Examination	**3.1, 3.3.1 to 3.3.9 incl, 3.4.1 to 3.4.8 incl, 3.29 and 3.30**	**4.6.1**
Dielectric withstanding voltage	**3.8**	**4.6.5**
Insulation resistance	**3.13**	**4.6.10**
Humidity	**3.14**	**4.6.11**

4.5.2.1 Group B inspection of adapters, protective covers and stowage receptacles. Manufacturers of adapters, protective covers and stowage receptacles or manufacturers who are not producing mating connectors shall submit data substantiating that group B tests of those items were performed with an appropriate number of approved electrical connectors as specified an 4.4.2, and an accordance with the applicable requirements of this specification and in the order shown an table **VIIIb.**

4.5.2.2 Sampling plan. A sample size shall be randomly selected in accordance with table VIIIc. If one or more defects are found, the lot shall be rescreened and defects removed. If one or more defects are found, a new sample shall be randomly selected from table VIIIc. If one or more defects are found, the lot shall not be supplied to this specification.

TABLE VIIIc. Sampling plan for group B.

Lot size	Sample size
1 to 13	**100 percent**
14 to 150	**13 units**
151 to 280	**20 units**
281 to 500	**29 units**
501 to 1200	**34 units**
1200 to 3200	**42 units**

~~4.5.2.3 Failures. If one or more sample units fail to pass group B inspection, the sample shall be considered to have failed.~~

4.5.2.3 Disposition of sample units Sample units which have been subjected to group B inspection shall not be delivered on the contract or purchase order.

4.5.3 Periodic inspection. Qualification verification inspection shall consist of group C. Except where the results of these inspections show noncompliance with the applicable requirements (see 4.5.3.2), delivery of products which have passed group B shall not be delayed pending the results

4.5.3.1 Group C inspection. Group C inspection shall consist of the tests specified in table VIIId in the order shown. Group C inspection shall be performed every 24 months, which must be accomplished within this period after notification of qualification. Group C inspection shall be made on sample units selected from inspection lots which have passed the groups A and B inspection.

4.5.3.1.1 Sampling plan. Every 24 months, mated connector sample units which have passed groups A and B inspections shall be subjected to the tests specified in table VIIId. Samples shall be selected in sufficient quantity to provide two samples per applicable test group (table VIII), as determined by the class of the samples to be tested.

TABLE VIIId. Group C inspection.

Test	Requirement paragraph	Method paragraph
Contact retention	3.11	4.6.8
Durability	3.15	4.6.12
Insulation resistance	3.13	4.6.10
Water immersion	3.21	4.6.18
Air leakage	3.10	4.6.7
Salt spray (corrosion)	3.16	4.6.13
Contact engagement and separation forces	3.26	4.6.23

4.5.3.1.2 Connector samples. For group C testing, connectors shall be provided as follows:

(a) All classes – Separate samples (complete connector assemblies) are required for crimp-contact connectors and solder-contact connectors. Four samples shall be provided. Two samples shall have pin contacts in the plug and socket contacts in the receptacle, and shall be wired with approximately three feet of wire. The other two samples shall have socket contacts in the plug and pin contacts in the receptacle, and shall be wired with approximately three feet of wire. Two of the samples shall be subject to test group 1 of table VIII. The other two samples shall be subjected to test group 2 of table VIII.

4.5.3.1.3 Failures. If one or more sample units fail to pass group C inspection, the sample shall be considered to have failed.

4.5.3.1.4 Disposition of sample units. Sample units which have been subjected to group C inspection shall not be delivered on the contract or purchase order.

4.5.3.2 Noncompliance If a sample fails to pass group B inspection, the supplier shall take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured under essentially the same conditions, with essentially the same materials, processes, etc, and which are considered subject to the same failure. Acceptance of the product shall be discontinued until corrective action, acceptable to the Government, has been taken. After the corrective action has been taken, group B inspection shall be repeated on additional sample units (all inspection, at the inspection which the original sample failed, at the option of the Government). Group A inspection may be reinstituted, however, final acceptance shall be withheld until the group B reinspection has shown that the corrective action was successful. In the event of failure after reinspection. information concerning the failure and correction action taken shall be furnished to the cognizant inspection activity and the qualifying activity.

4.5.3.3 Assembly plants. Assembly plants must be listed on or approved for listing on the applicable qualified products list. The qualified connector manufacturer shall certify that the assembly plant is approved for the distribution of the manufacturer's parts. The assembly plant shall use only piece parts supplied by the qualified connector manufacturer. No testing other than visual examination as required of certified piece parts obtained from the qualified connector manufacturer, except when there is cause for rejection. All assemblies produced at the assembly plant shall be subjected to examination of product to assure that the assembly process conforms with that established at the qualified manufacturing plant Quality control requirements, including Government inspection surveillance, shall be the same as required for the qualified connector manufacturer.

4.5.4 Inspection of packaging. The sampling and inspection of the preservation, packing, and container marking shall be in accordance with the requirements of MIL-DTL-55330.

4.6 Methods of examination and test.

4.6.1 Visual and mechanical examination. Connectors, adapters, protective covers, and stowage receptacles shall be examined to verify that the material, design, construction, physical dimensions, marking, and workmanship are in accordance with the applicable requirements (See 3.1, 3.3.1 to 3.3.9 inclusive, and 3.4.1 to 3.4.5 inclusive, 3.29 and 3.30).

4.6.2 Permeability (see 3.5). Permeability of the connectors shall be measured with an instrument conforming to **ASTM A342** ~~MIL-I-17214~~.

4.6.3 Shell-to-contact resistance (class L **grounding**) (see 3.6). The electrical resistance between **grounding** contacts and the shell shall be determined by measuring the potential drop from each **grounding** contact to the shell when carrying a current of 1 ± 0.1 amperes DC. Using the voltmeter-ammeter method, the potential drop shall be measured at the extreme terminal end of the **grounding** pin or socket and the front of the shell (plug or receptacle).

4.6.4 Contact resistance (see 3.7). Each pair of mated pin and socket contacts shall be tested after only one mating of the contacts, in accordance with ~~method 3004 of MIL-STD-1344~~ **test procedure 06 of EIA-364**. The following details and exceptions shall apply:

(a) Wire sire and type - See 4 4.3.

(b) Test current - See table I.

(c) Test sample preparation - In addition to preparation in method 3004 the unassembled contacts shall be mated to the minimum depth as determined when the contacts are installed in the appropriate connectors. The potential drop shall be measured at the extreme terminal ends of the contacts. See figure 2 for wiring diagram.

(d) Millivolt drop requirements - See table I.

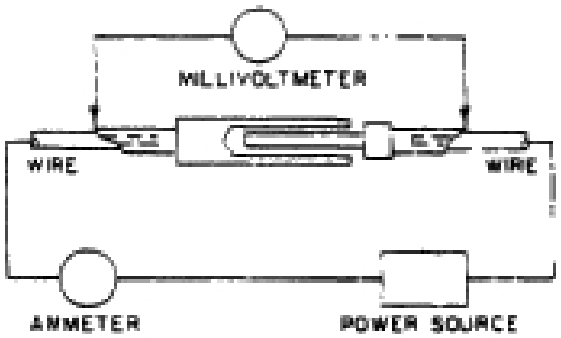


FIGURE 2. Wiring diagram for contact resistance test.

4.6.5 Dielectric withstanding voltage (see 3.8). Unmated connectors shall be tested an accordance with ~~method 3001 of MIL-STD-1344~~ **test procedure 20 of EIA-364**. The following details and exceptions shall apply:

(a) Magnitude of test voltage - See table II.

(b) Nature of potential - AC.

(c) Points of application of test voltage - Between the two closest contacts and between the shell and the contacts closest to the shell Voltage shall not be applied between **grounding** contacts or **grounding** contacts and shells of any grounding, class L connectors.

(d) Application of test voltage - The test voltages shall be applied gradually at the rate of approximately 300 volts per second until the specified voltage as reached.

4.6.6 Temperature cycling (see 3.9). Unmated connectors shall be tested an accordance with ~~method 1003, test condition A, of MIL-STD-1344~~ test procedure 32, condition I, 5 cylces, of EIA-364, except that the high temperature shall be 125°C, +3°C/ -0°C.

4.6.7 Air leakage (see 3.10).

4.6.7.1 Classes C and J connectors. After a minimum of 30 minutes at -55° ± 3° C, classes C and J receptacles shall be subjected to 30 (lb_f/in^2) differential applied alternately to each insert face. The leakage rate shall be measured.

4.6.7.2 Class L connectors. Class L receptacles shall be mounted to a suitable fixture using the normal mounting method and panel seal. Both class L plugs and receptacles shall be subjected to a pressure differential of 30 lb_f/an^2 with the pressure applied alternately to each insert face The leakage rate around the panel seal and through the insert shall be measured.

4.6.7.3 Protective covers. The protective covers shall be mated to a connector having either the contacts or inserts removed and a pressure of I5 lb_f/in^2 shall be applied to the inner side of the protective cover The leakage rate shall be measured.

4.6.8 Contact retention (see 3.11). Individual contacts shall be subjected to the axial loads specified in table Ill. The load shall applied, first in one direction. then the other, on individual contacts with all other contacts in place and the insert an the shell, uniformly at a rate of approximately 1 pound per second.

4.6.9 Insert retention (see 3.12). Inserts shall be subjected to the axial load specified an table IV, first in one direction, then the other. Loading shall be accomplished by applying air pressure alternately to each face of the insert. The pressure shall be increased gradually at a rate of approximately 10 lb_f/in^2 per second until the specified pressure in table IV is reached.

4.6.10 Insulation resistance (see 3.13). Mated connectors shall be tested as specified in ~~method 3003 of MIL-STD-1344~~ **test procedure 21 of EIA-364**. The following detail and exception shall apply:

(a) Points of application of test voltage - Between all adjacent pairs of contacts, but not more than six pair, and between the shell and all adjacent contacts, but not more than six.

(b) No measurements shall be made between **grounding** contacts or between **grounding** contacts and shell of any grounding class L connector.

4.6.11 Humidity (see 3.14). All cable mounted connectors shall be completely wired and assembled with appropriate accessories in accordance with the directions of the manufacturer. Cable used shall be as specified (see 4.4.3). Class L receptacles shall be wired with suitable single conductor wire. The mated connectors shall be subjected to 10 cycles of exposure an accordance with method 106 of MIL-STD-202, with the exceptions and details lasted below:

(a) Connectors shall be mounted an a horizontal position with the wires or cables descending into the backshells There shall be no drip loops in the wires or cables.

(b) Wares and cables shall be brought out of the chamber through vapor-tight seals or the ends of the cables or wires effectively sealed.

(c) There shall be no wire splices an the chamber.

(d) Delete steps 7a and 7b.

(e) During steps 1 to 6 inclusive, a polarizing potential of 100 volts dc shall be applied between alternate contacts connected together electrically and the remaining contacts and shell connected together electrically. The polarity of the voltage applied to the shell shall be negative voltage shall not be applied to the **grounding** contacts of class L grounding connectors.

(f) After a minimum of 3 hours of step 7 of the tenth cycle, while at the high humidity condition, the connectors shall be subjected to the insulation resistance test of 4 6.10.

(g) Following these measurements, the connectors shall be maintained at test conditions of 4.3 for 24 hours maximum. At the conclusion of this recovery period, insulation resistance and dielectric withstanding voltage shall be tested as specified an 4.6.10 and 4.6.5, respectively

4.6.12 Durability with coupling rings (see 3.15). Counterpart connectors shall be mated and unmated 100 times at a maximum rate of 30 cycles per hour with coupling rings attached. The connectors shall be mated and unmated 50 cycles before corrosion and 50 cycles after corrosion.

4.6.13 Corrosion (see 3.16). Unmated connectors and individual contact samples shall be tested in accordance with ~~method 1001 of MIL-STD-1344~~ test procedure 26 of EIA-364. The following details and exceptions shall apply:

(a) The connectors shall be tested for 452 hours mated followed by 48 hours unmated.

(b) The connectors shall not be mounted, but shall be suspended from the top of the chamber using waxed twine or string, glass rods or glass cord.

(c) Wire ends shall be protected to prevent salt migration. After the salt spray exposure, the remaining number of durability cycles specified in 4.6.12 shall be completed.

4.6.14. Cable pull-out (see 3.17). Cables assembled in the connector adapter, but with the conductors not attached to the contacts, shall be subjected to the axial tensile load pull-out force specified an table V. The amount of slippage shall be measured between the cable and the connector adapter. The specified load shall be applied for a minimum of 1 hour. When cable grips are an integral part of the adapter or connector assembly, they shall be used.

4.6.15 Vibration (see 3.18). Connectors with suitable adapters shall be tested in accordance with ~~method 2005 of MIL-STD-1344~~ **test procedure 28 of EIA-364**. The following details and exceptions shall apply:

(a) Test condition number – III.

(b) Counter part plugs shall be engaged with the mounted receptacles and held by normal locking means only. No safety wire shall be used.

(c) The vibration of the receptacle and fixture shall be monitored by a suitable sensor at a point or on the fixture near a receptacle support point or on the receptacle itself.

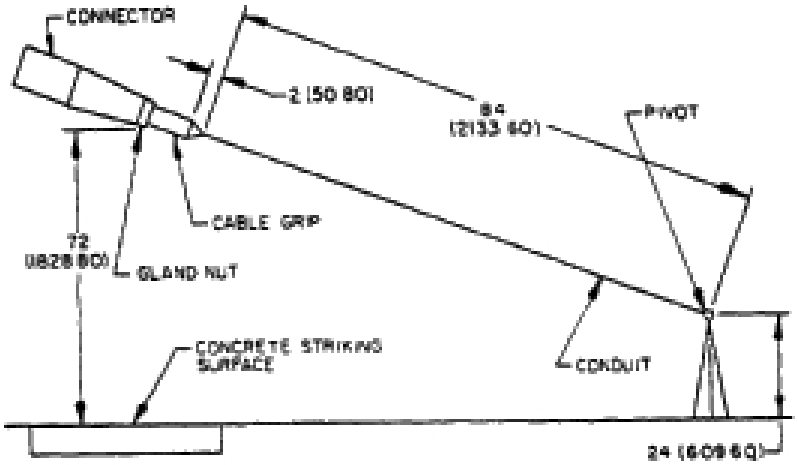
(d) All contacts shall be wired in a series circuit with at least 100 milli-amperes of current flowing through the series circuit during vibration.

(e) The cable or wire bundle shall be clamped to non-vibrating points at least 8 inches from the rear of the connectors The clamping length may be selected or changed to avoid resonance of the cable or ware.

(f) The **grounding** contacts of class L pounding connectors shall not be hired into the series monitoring circuit.

4.6.16 Drop (class L) (see 3 19) (qualification only). Cabled, unmated line connectors (MS90556 and MS90557) with protective covers assembled shall be tested. Cables shall be inserted through an 84 inch .+2 inch -0 inch length of standard commercial conduit or similar tube of sufficient .diameter to freely accommodate the cable and shall be taped to the conduit so the connector cable grip is 2 inches +2 inch -O inch from the end of the conduit. The other end of the conduit with the cable extending, shall be pivoted at a point 24 inch .+1 inch -0 inch above the horizontal surface of solid, adequately aged concrete. The pivot shall be capable of rotating 360° and shall not impede or retard the connectors free

fall to the striking surface. The connector shall be raised by the cap retention. Lanyard to a point so that the base of the connector (gland nut) is 72 inches +6, -0 above the striking surface and allowed to free fall to the striking surface. The connector shall be dropped 10 times, rotating the connector after each free fall, so that the connector strikes the concrete in each of 10 different radial positions approximately 36° apart. The cable shall then be removed from the conduit and the shells and inserts examined (see figure 3).



NOTES:
1. Dimensions are in inches.
2. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch - 25.4 mm.
3. Metric equivalents are in parentheses.

FIGURE 3. Typical fixture for drop test.

4.6.17 High-impact shock (see 3.20). Complete mated connectors .with suitable adapters shall be tested an accordance with method 207 of MIL-STD-202. The following details and exceptions shall apply:

(a) Mounting fixtures - In accordance with figure 207-4B, MIL-STD-202.

(b) Electrical load and operating conditions - All contacts shall be wired in a series circuit with at least 100 milliamperes of current flowing through the series circuit during high-impact shock.

(c) Monitoring during test - A suitable device shall be used to monitor the current flow and indicate any discontinuity which exceeds 10 micro-seconds interruption of current flow. The **grounding** contacts of class L grounding connectors shall not be wired into the series monitoring circuit.

(d) The mated connectors shall be held together only by the normal locking device cable or wires shall be supported on a stationary frame not closer than 12 inches from the connector assembly.

4.6.18. Water immersion (mated and unmated) (see 3.21). All connectors shall he completely wired and assembled with appropriate accessories an accordance with the directions on the manufacturer's instruction sheet Cable and single conductors used shall be an accordance hath 4.4.3. Connectors assembled to multiconductor cables shall be tested in a chamber under pressure by submerging in conductive water. Receptacles assembled to single conductor wares shall be mounted to the pressure chamber by their normal mounting means with mounting flange gaskets, and their terminal ends external to the chamber containing the conductive water. The water conductivity shall be assured by the addition of at least 5 percent sodium chloride by weight. The cable ends shall be sealed or extended outside the chamber. The tests shall be performed after each of the following conditionings for the classes specified:

(a) As received (all classes).

(b) After a minimum of 4 hours at: -55°C + 0 °/- 3° and return to room temperature (classes C and J only).

(c) After a minimum of 4 hours at 80°C +3°/- 0° and return to room temperature (all classes).

4 6.18.1 Mated (all classes). The chamber shall be at a 1 standard atmosphere pressure differential for a minimum of four hours. While the samples are still submerged and after the chamber has returned to normal pressure, insulation resistance shall be measured as specified an 4.6.10.

4.6.18.2. Unmated (class C and J). The chamber shall be at a 1 atmosphere pressure differential for a minimum of four hours. After the test samples have been removed from the water, salt deposits may be removed by a gentle wash or dip an running water not warmer than l00°F (37.8°C). Following this, all excess moisture shall be removed and the samples dried with compressed air for 5 minutes The insulation resistance shall them be measured as specified an 4 6.10.

4.6.18.3. Unmated (Class L). Connectors shall be tested as specified an 4.6.18.2, except the chamber shall be at a pressure differential equivalent to 6 feet of water for 4 hours minimum.

4.6.19. Heat rise (class L) (see 3.22). The test shall be performed at 25°C ±5°C in stall air, on mated pairs of connectors with the contacts assembled an the connectors. The contacts shall be wired using suitable stranded copper wire of the same AWG rating as the contacts. All phase and neutral contacts shall be connected in series. All jumpers are to be at least 2 feet long Thermocouples shall be used to monitor the temperature of the contact terminals. Rated dc current shall be applied through the contacts for a minimum of 4 hours The temperature of each terminal shall be measured after the 4 hours of loading.

4 6.20 Arc rupture, class L (see 3.23). Connectors, less coupling ring, shall be subjected to 50 continuous cycles of insertion and withdrawals while carrying the test currents specified in table VI.

(a) Insertion and withdrawal cycle.

(1) One mating half of the connector pair shall be firmly mounted. The remaining half shall be mounted an a reciprocating (cycling) mechanism and axially aimed with the firmly mounted half.

(2) The cycling mechanism shall mate the receptacle and plug to their normal mating depth At the initiation of testing and each subsequent cycle, the connector pair shall be mated, and remain mated for 5 seconds minimum. The connector pair shall then

be separated at a rate of 10 ±1 inches per second. After separation, the connectors shall be remated at the same speed One mating and unmating sequence is considered one cycle. The mating and unmating cycle shall be conducted at a rate not to exceed six complete cycles per minute.

(b) Electrical load

(1) The sockets shall be connected to a 400 Hertz source and the pans to an electrical load.

(2) The voltage shall be applied between neutral contact and the phase contact closest to the neutral contact. When no neutral contact is available test between two phase contacts.

(3) A steady state inductive load equal to 150 percent of rated current as specified an table VI, at a power factor between 0.75 and 0.80, and at a minimum of 208 volts root mean square (rms), shall be applied using the circuit shown in figure 4. A shunt resistance, in parallel with the inductance, is permissible provided the current through the. resistor does not exceed 1 percent of the total load current. The inductance shall not alter the waveform of the. power supply. Following the test, dielectric withstanding voltage and insulation resistance shall be tested as specified an 4.6.5 and 4.6.10, respectively.

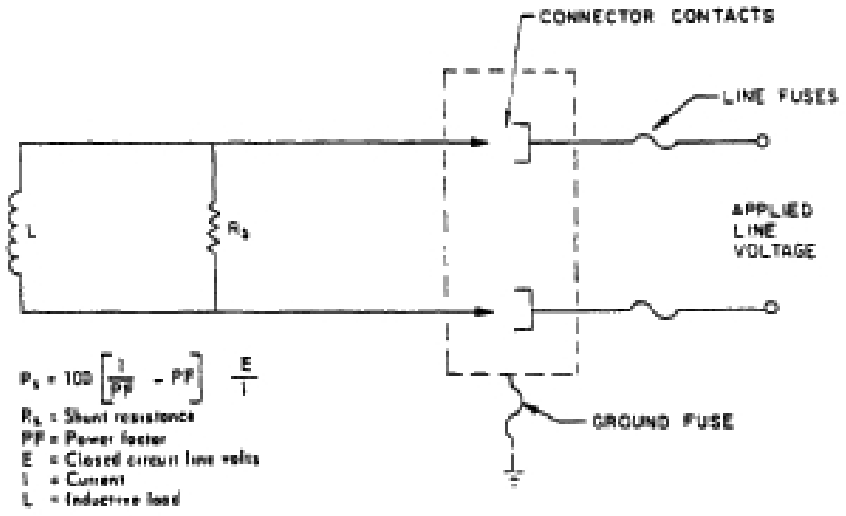


FIGURE 4. Typical circuit for arc rupture.

4 6.21 Fluid immersion see 3.24). Unmated connectors shall be immersed fully an the fluids specified in table IX for 20 hours minimum. One mating pair of connectors of each class shall be immersed in each fluid. Upon removal from the fluid, connectors shall be maintained in free air at room temperature for I hour minimum. Dielectric withstanding voltage shall then be tested as specified in 4.6.5. except the magnitude of test voltage shall meet the requirements of 3.24.

TABLE IX. Fluids for fluid immersion.

Fluids	Specification
Aviation hydraulic fluid (petroleum base)	MIL-HI- 5606
Aircraft lubricating oil	MIL-L-23699

4.6.22 Tensile (Protective cover) (see 3.25). Each protective cover shall be securely held and a tensile static load of 25 pounds minimum shall be applied to the end of the chain for at least 5 minutes an each direction as follows:

(a) With the axis of the chain at right angles to the axis of the holding rivet.
(b) With the axis of the chain an the same axis as that of the rivet.

4.6.23 Contact engagement and separation forces (set 3.26). Sockets shall be mounted in a suitable position or fixture for applying gradually increasing loads for the engagement and separation of test pins. Half of the quantity of socket contacts used in this test shall be installed an inserts and the remaining socket contacts shall be out of inserts. Depth of engagement shall conform to that encountered in service. The test pins shall be an accordance with **SAE-AS31971** ~~MS3197~~, except for contact size 2/0 whose diameters shall be a minimum of 4050 + .0001 - .0000 inch and a maximum of 4070 + .0000 - .0001 inch. The minimum diameter test pin shall be inserted and removed from the socket and the separation force measured during removal. The maximum diameter test pin shall be inserted and removed from the socket and the engagement force. measured during insertion.

4.6.24 Probe damage (contacts, size 16) (see 3.27). Contacts shall be tested as specified in ~~method 2006 of MIL-STD-1344~~ **test procedure 25 of EIA-364** with the following details and exceptions:

(a) A steel test probe of nominal pan contact diameter with a spherical tip shall be inserted into each socket to 1/2-inch, 3/8-inch, and 1/4-inch depths, measured from the face of the inserts.

(b) A bending moment of 2 inch-pounds ±10 percent shall be applied about the inserted end and the insert assembly shall be slowly rotated an one direction through 360 degrees.

(c) This test shall be applied with the socket contacts an their inserts and the sockets locked, if necessary, to prevent rotation an the inserts.

(d) The diameter of the handle (.190) is not applicable.

4.6.25 Abrasion (see 3.28).

4.6. 25.1 Nonconductive finish (see 3.23.1). Panels specified an 4.4.1(e) which have been processed with aluminum connector parts, shall be subjected to 50,000 cycles on the TABER abraser, or equivalent. Wheels used on the TABER abraser, or equivalent, shall be CS-I7 with a 1000-gram load on each wheel. Wheels are to be redressed after every 10,000 cycles. Following the abrasion test, salt spray (corrosion) shall be tested as specified in 4.6.13.

4.6.25.2 Conductive finish (see 3.28.2). Panels specified an 4.4.1(e) which have been processed with aluminum connector parts shall be subjected to 5,000 cycles on the TABER abraser or equivalent. Wheels used on the TABER abaser or equivalent shall be CS-17 with 1,000-gram load on each wheel.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

6.1 Intended use. The various types and classes of connectors are intended for use as follows:

(a) Class C connectors are intended for external interconnection use on vans, shelters, trailers, buildings, and heavy duty (rough service) applications. They are not for primary power distribution.

(b) Class J connectors are intended for use only where class C connectors can be used but where a wire support grommet is necessary.

(c) Class L connectors are intended for power connections in the current range from 40 to 200 amperes where heavy duty, waterproof and arc quenching ability are required and are to be used only with heavy-duty jacketed cables specified on the applicable insert standard.

(d) Class R connectors are intended for use as general purpose heavy-duty connectors where pressurization and arc quenching ability are not required. The connectors can be made weatherproof when the accessory sealing adapter is attached. They are not for primary power distribution.

6.1.1 Use of alternate insert positions. When connectors of the same size and arrangement are installed sufficiently adjacent to one another to provide a danger of mating plug with the wrong receptacle, it as intended that alternate insert positions should be employed. Alternate insert positions are also used an the class L connectors to differentiate between the various power frequencies being used.

6.1.2 Wire sizes to be used with contacts. It is intended that the wire attached to each connector contact should be of the AWG size (or smaller diameter), corresponding to the contact size number. For example, it is intended that an AWG size 12 wire be soldered to at least a size 12 contact; and AWG size 6 wire should be soldered or crimped if applicable to a size 4 or size 6 contact. MS3348 contact bushings should be used with class L contacts if the wire AWG is smaller than the wire barrel size.

6.2 Ordering data. Procurement documents should specify the following:

(a) Title, number, and date of this specification.

(b) Applicable MS part number.

6.3 Definitions. See paragraph 6.3.1 through 6.3.4.

6.3.1 Arc quench type connector. This type of connector is designed as a circuit breaking connector with special provisions to minimize damage to cable or connector and reduce the hazard to personnel during circuit rupture under the worst field conditions of high humidity and standing in mud or water. Specifically, any arc drawn while mating or unmating connectors under maximum electrical load will be extinguished before the pan contact leaves the socket contact insert chamber.

6.3.2 Grounding contacts. The contacts used for terminating the equipment safety grounding wires of the cable or equipment. The grounding pins are always longer than the phase pins for the same diameter.

6.3.3 Phase contacts. The contacts used for terminating the phase (also called the power or hot) conductors of the cable of equipment.

6.3.4 Neutral contacts. The contacts used for terminating the neutral conductor of the cable or equipment. The neutral pins are always longer than phase pins for the same diameter.

6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in the Qualified Products List, whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from Defense Supply Center Columbus, ATTN: DESC-VQ, 3990 East Broad Street, Columbus, Ohio 43213-1199.

~~6.4.1 Copies of SD-6, "Provisions Governing Qualification' may be obtained upon application to Commanding Officer, Navel Publication and Farms Center, 580l Tabor Avenue, Philadelphia, PA 19120.~~

6.5 Finish colors. Coating will vary an color depending on basic metal alloy and method of manufacture. This variance in color does not alter the performance capabilities of the finish.

~~6.6 Intermetallic contact. The finishing of metallic areas to be placed an intimate contact by assembly presents a special problem, since intermetallic contact of dissimilar metals results an electrolytic couples which promote corrosion through galvanic action. To provide the required corrosion protection. intermetallic couples are restricted to those permitted by table XI. Table XI shows metals and alloys (or plates) by groups which have common electromotive forces (EMF) within 0 05 volt when coupled with a saturated calomel electrode in sea-water at room ambient temperatures. All members of a group are considered as completely compatible, one with the other. Compatible couples between groups have, been specified an table XI based on a potential difference of 0.25 volt maximum. To simplify any arithmetic involved, table XI shows, an addition to EMF against a calomel electrode, a derived "anodic index" with group I (gold, etc) as 0 and group 18 (magnesium, etc) as 175. Subtraction of a lower group anodic index gives the EMF difference in hundredths of a volt.~~

~~6.6.1 Compatible couples groups. Table XI sets up 18 primary groups. It may be noted that neither the metallurgical similarity or dissimilarity of metals is the parameter for selection of compatible couples. All members within a group, regardless of metallurgical similarity. are considered inherentlv nonsusceptable to galvanic action, when coupled with any member within the group, for example, such dissimilar metals at platinum and gold. Similarly, such basically dissimilar alloys as austenitic stainless steel, silver-solder, and low brass (all members of group 5) are inherently nonsusceptable when coupled together.~~

~~6.6.2 Compatibility graphs. Permissible couple series are shown an table XI by the graphs at the right. Members of groups connected by lines will form permissible couples. A "0" indicates the mast cathodic member of each series a "0" an anodic member, and the arrow indicates the anodic direction.~~

~~6.6.3 Selection of compatible couples. Proper selection of metals in the design of equipment will result in fewer intermetallic contact problems. For example, for sheltered exposure, neither silver nor tin require protective finishes. However, since silver has an anodic index of I5 and tin 65, the EMF generated is a couple as 0.50 volt, which is not allowable by table XI. In this case, other metals or plates will be required. It should be noted that, an intermetallic couples, the member with the higher anodic index is anodic to the member with the lower anodic index and will be susceptible to corrosion in the presence of an electrolytic medium. If the surface area of the cathodic part as significantly greater than that of the anodac part, the corrosive attack on the contact area of the anodic part may be greatly intensified. Material selection for intermettallic contact parts, therefore, should establish the smaller part as the cathodic member of the couple, whenever practicable.~~

~~6.6.4 Plating. When base metals intended for intemetallic contact form couples not allowed by table XI, they are to be plated with those metals which will reduce the potential difference to that allowed by table XI.~~

~~6.7 Changes from previous issues. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.~~

6.5 Military unique statement. This connector is military unique because it is an environment resisting, miniature, quick disconnect circular connector, capable of operating in high shock, high vibration and high temperature environments as well as meeting the salt spray corrosion requirements of this specification.

6.6 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. Table X lists the Environmental Protection Agency (EPA) top seventeen hazardous materials targeted for major usage reduction. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see section 3).

~~TABLE XI. Compatible couples (see 6.6).1/~~

~~Group no.~~	~~Metallurgical category~~	~~EMF (volt)~~	~~Anodic Index (0.01 v)~~	~~Compatible couples~~
~~1~~	~~Gold, solid and plated; gold-platinum alloys; Wrought platinum (most cathodic)~~	~~+0.15~~	~~0~~	
~~2~~	~~Rhodium plated on silver-plated copper~~	~~-0.05~~	~~10~~	
~~3~~	~~Silver, solid or plated, high plated copper~~	~~0~~	~~15~~	
~~4~~	~~Nickel, solid or plated, monel metal, high nickel-copper alloys~~	~~-0.15~~	~~30~~	
~~5~~	~~Copper, solid or plated, low brasses or Bronze, silver solder; German silver; high Copper-Nickel alloys, nicke-chromium alloys, austentic corrosion-resistant steel~~	~~-0.20~~	~~35~~	
~~6~~	~~Commercial yellow brasses and bronze~~	~~-0.25~~	~~40~~	
~~7~~	~~High brasses and bronzes; naval brass; Muntz metal~~	~~-0.30~~	~~45~~	
~~8~~	~~18 percent chromium type corrosion resistant steel~~	~~-0.35~~	~~50~~	
~~9~~	~~Chromium, plated; tin, plated; 12 percent Chromium type corrosion-resistant steels~~	~~-0.45~~	~~60~~	
~~10~~	~~Tin-plate, template,tin-lead solder~~	~~-0.50~~	~~65~~	
~~11~~	~~Lead, solid or plated high lead alloys~~	~~-0.55~~	~~70~~	
~~12~~	~~Aluminum, wrought alloys of the duralumin Type~~	~~-0.60~~	~~70~~	
~~13~~	~~Iron, wrought, gray, or malleable, plain carbon and low alloy steels, Armco iron~~	~~-0.70~~	~~85~~	
~~14~~	~~Aluminum, wrought alloys other than duralmin type, aluminum, case alloys of the silicon type.~~	~~-0.75~~	~~90~~	
~~15~~	~~Aluminum, cast alloys other than silicon type, cadmium, plated and chromate~~	~~-0.80~~	~~95~~	
~~16~~	~~Hot dip zinc plate. galvanized steel~~	~~-1.05~~	~~120~~	
~~17~~	~~Zinc, wrought, zinc-based die-casting alloys; zinc, plated~~	~~-1.10~~	~~125~~	
~~18~~	~~Magnesium and magnesium-base alloys, cast or wrought (most anodic)~~	~~-1.50~~	~~175~~	

~~1/ Compatible couples – potential difference of 0.25 volt maximum between groups.~~

TABLE X. EPA top seventeen hazardous materials.

Benzene	**Dichloromethane**	**Tetrachloroethylene**
Cadmium and Compounds	**Lead and Compounds**	**Toluene**
Carbon Tetrachloride	**Mercury and Compounds**	**1,1,1 - Trichoroethane**
Chloroform	**Methyl Ethyl Ketone**	**Trichloroethylene**
Chromium and Compounds	**Methyl Isobutyl Ketone**	**Xylenes**
Cyanide and Compounds	**Nickel and Compounds**	

6.7 Guidance on use of alternative parts with less hazardous or nonhazardous materials. This specification provides for a number of alternative plating materials via the PIN. Users should select the PIN with the least hazardous material that meets the form, fit and function requirements of their application.

6.8 Subject term (keyword) listing.

Connectors
Control Circuits
Electrical power
Heavy duty
Multicontact
Plugs and receptacles
Quick disconnect
Water proof

Concluding material

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity:
DLA – CC

Review activities:
Army – AR, MI
Navy – AS, MC, OS, SH, YD
Air Force – 19

(Project 5935-4719)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

APPENDIX

CLASS L CONNECTORS - ENGINEERING APPLICATION INFORMATION

10. SCOPE

10.1 This appendix provides engineering application information for the benefit of users of the MIL-DTL-22992, class 1 connectors.

20 DESION APPLICATION

20.1 These connectors are a special design for power distribution using portable power cable. They are designed for use where they will be subjected to severe impacts such as, dropping on concrete, run over by vehicles, or subjected to extremes of field service use. They are arc quenching, if inadvertently separated under full load. They are waterproof when mated or unmated, capped or uncapped. They are designed to meet all OSHA and National Electric Code requirements for grounding connectors.

30 SAFETY SELECTIVITY

30.1 These connectors are designed with mating polarization for specific current rating, voltage, frequency (Hz). phase, and pounding requirements This prevents mating with a connector of incompatible power characteristics.

30.2 These connectors are designed in the sizes based on current rating as shown an table XI.

TABLE XI. Connector sizes.

Current rating (amps)	Shell size	Contact size	Insert arrangements Available
40	28	#6	MS14054
60	32	#4	MS90565
100	44	#1/0	MS14055
150	48	#2/0	MS90567
200	52	#4/0	MS14057

30.3 These connectors are designed for use in the voltage, phase, wire, and frequency combinations as shown an table XII.

TABLE XII. Connector voltage. phase. ware and frequency.

Voltage	Phase 0	No wire	60 Hz	400 Hz
28 Vdc	-	2	N/A	N/A
120 ac 1/	1	2	X	X
240 ac	1	2	X	X
120/240 ac	1	3	X	N/A
120/208 ac	3	4	X	X
240/416 ac	3	4	X	X
277/480 ac	3	4	X	N/A

1/ All ac connectors have a separate contact (or contacts) for equipment system ground which is (are) electrically connected to the connecter shell.

40. CABLE INTERCONNECTION

40.1 These connecters are designed for direct plug-in connection to equipment, or to other class L connectors an “extension cord” fashion as shown an figure 5. This is provided by a “one way” system wherein each of the different numbered connector is designed and designated for use as shown in table XIII.

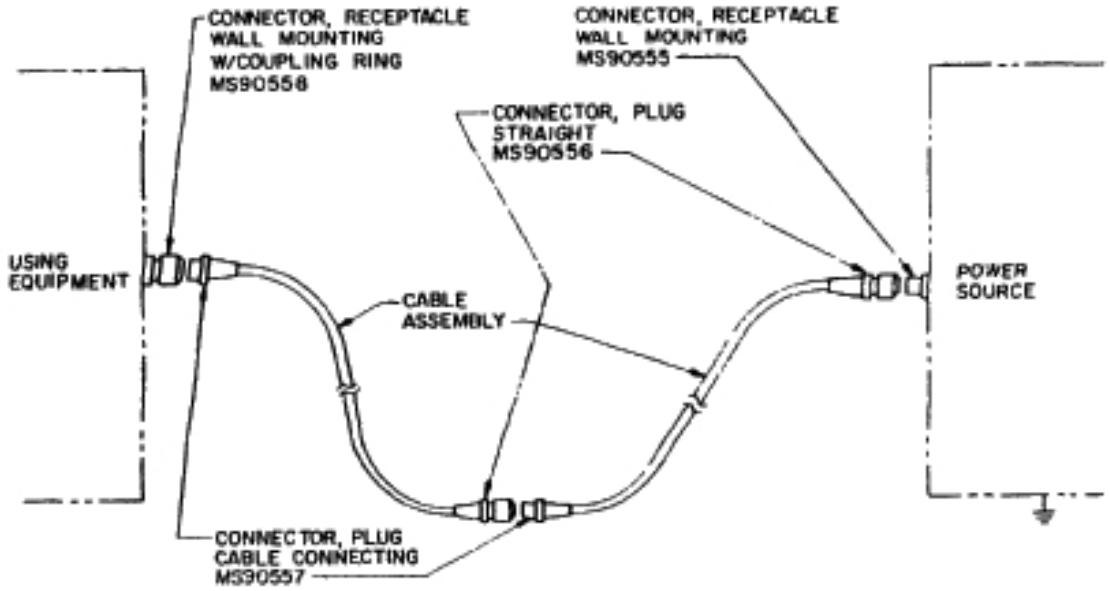


FIGURE 5. Class L cable interconnection.

TABLE XIII. Cable interconnection.

Designated use	Connector MS number	Designed only with
Power receptacle	MS90555	Sockets
Straight Plug 1/	MS90556	Pins
Cable Plug	MS90557	Sockets
Equipment receptacle **1/**	MS90558	Pins

1/ Has coupling ring.

50. COMPLETE ASSEMBLIES

50.1 Each connector is supplied with a cap or cover. In addition, each cable plug and cable receptacle as supplied with a cable gland and a cable grip. The cable grip is sized for the cable it will be used on. This sizing is controlled by the insert pattern number.

60. STANDARDIZED GENERATOR WIRING AND CONNECTIONS

60.1 Table XIV shows the standard wire color coding, and contact and generator terminal markings used with these connectors.

70. CRIMP BUSHINGS FOR CLASS L CONNECTORS

70.1 Table XV lists the MS3348 crimp bushings required for class L connectors.

TABLE XIV. Standardized generator wiring and connections.

Generator terminal marking	Current	Contact designation	Conductor circuit	Wire color
+ (POS)	28 V dc	A	Positive	Black
- (NEG) ground	28 V dc	N	Negative	White
L_1	AC	A	Phase A	Black
L_2	AC	B	Phase B	Red
L_3	AC	C	Phase C	Blue (commercial may be orange)
L_0	AC	N	Neutral	White
G (or Gnd)	AC	G	Safety grounding	Green (commercial may be bare)

TABLE XV. Crimp bushings for class L connectors.

Arrangement	1/ Contacts		Cable conductors 1/ MS90556 and MS90557		Contact bushings requirements	
	Quantity	Size	Quantity	Size	Quantity	P/N MS3348-
28 – 02	2	6	2	8	2	6-8L
28 – 04	2	6	2	6	2	6-8L
	1	6(G)	2	10(G)	-	-
28 – 06	3	6	3	4	3	6-8L
	1	4(G)	3	8(G)	1	4-8L
28 – 07	3	6	3	6	-	-
	1	4(G)	3	6	1	4-5L
28 – 12	4	6	4	10(G)	4	6-8L
	1	6(G)	4	4	-	-
32 – 02	2	4	2	8(G)	2	4-6L
	2	4	2	6	2	4-6L
32 – 04	2	6(G)	2	10(G)	2	6-10L
32 – 05	2	4	2	4	-	-
	2	6(G)	2	8(G)	2	6-8L
32 – 06	3	4	3	6	3	4-6L
	1	4(G)	3	12(G)	1	4-8L
32 – 12	4	4	4	6	4	4-6L
	1	6(G)	4	12(G)	-	-
44 – 02	2	1/0	2	2	2	1-2L
	2	1/0	2	2	2	1-2L
44 – 04	2	4(G)	2	6(G)	2	4-6L
44 – 05	2	1/0	2	1	-	-
	2	4(G)	2	5(G)	2	4-5L
44 – 06	3	1/0	3	2	3	1-2L
	3	6(G)	3	8(G)	3	6-8L
44 – 12	4	1/0	4	2	4	1-2L
	4	6(G)	4	9(G)	4	6-9L
44 – 13	4	1/0	4	1	-	-
	4	6(G)	4	8(G)	4	6-8L
44 – 52	3	1/0	3	2	3	1-2L
	1	1/0(G)	1	2(G)	1	1-2L
44 – 56	3	1/0	3	6	3	1-6L
	1	1/0(G)	1	6(G)	1	1-6L
52 - 02	2	4/0	2	2/0	2	4/0-2/0L
52 - 06	3	4/0	3	2/0	3	4/0-2/0L
	3	4(G)	3	5(G)	3	4-5L

1/ (g) designates grounding.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-001.

INCH-POUND

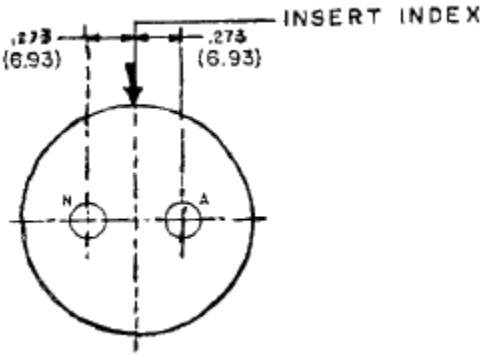
MS14054E
DRAFT
SUPERSEDING
MS14054D
10 December 2001

DETAIL SPECIFICATION SHEET

INSERT ARRANGEMENTS, ELECTRICAL CONNECTOR, SIZE 28, CLASS L, 40 AMPS

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

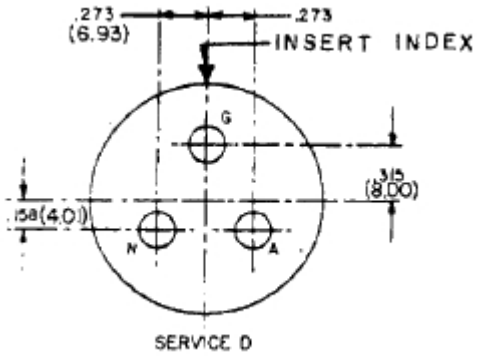


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
1	A	6	49-329	48-317
1	N	6N	49-329 See note 7	48-318

NOTES:
1. -02-Cable IPCEA 2-NO 8 conductor round type W.
2. -03-Cable-C0-02-HDF (2/6) 0930 PER MIL-C-3432.
3. Mark 28-02 on 28-03 insert (see note 6 of figure 1).

FIGURE 1a. 28 volt DC two wire, -02 and -03 insert arrangements.

FIGURE 1. Insert arrangements, service D.

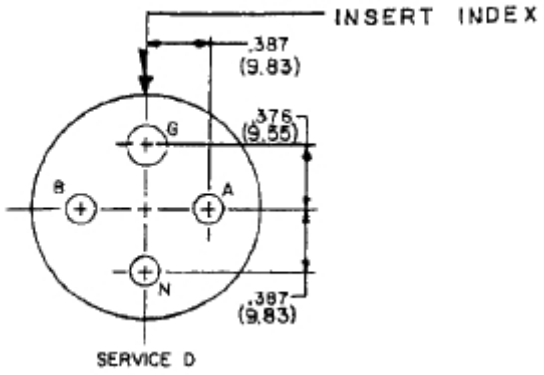


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
1	A	6	49-329	48-317
1	G, N	6N	49-329 See note 7	48-318

NOTES:
1. -04-Cable IPCEA 2-NO 8 conductor round type G.
2. -05-Cable-C0-02-HDF (2/6-2/1OR) 0930 PER MIL-C-3432.
3. Mark 28-04 on 28-05 insert (see note 6 of figure 1).

FIGURE 1b. AC single phase two wire grounding, -04 and -05 insert arrangements.

FIGURE 1. Insert arrangements, service D - Continued.

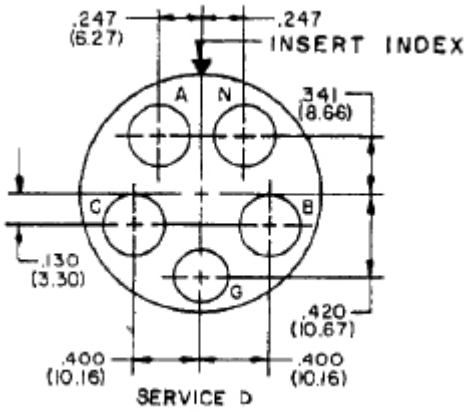


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
2	A, B	6	49-329	48-317
1	N	6N	49-329 See note 7	48-318
1	G	4N	49-331 See note 7	48-321

NOTES:
1. -06-Cable IPCEA 3-NO 8 conductor round type G.
2. -07-Cable-C0-03-HDF (2/6-2/1OR) 1000 PER MIL-C-3432.
3. Mark 28-06 on 28-07 insert (see note 6 of figure 1).

FIGURE 1c. AC single phase three wire grounding, -06 and -07 insert arrangements.

FIGURE 1. Insert arrangements, service D - Continued.



QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
3	A, B, C	6	49-329	48-317
2	N, G	6N	49-329 See note 7	48-318

NOTES:
1. -12-Cable IPCEA 4-NO 8 conductor round type G.
2. -13-Cable-C0-04-HDF (4/6-4/12R) 1090 PER MIL-C-3432.
3. Mark 28-12 on 28-13 insert (see note 6 of figure 1).

FIGURE 1d. AC three phase four wire grounding, -12 and -13 insert arrangements.

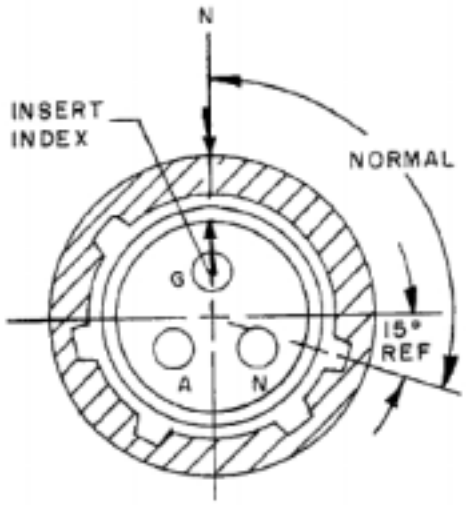
FIGURE 1. Insert arrangements, service D - Continued.

Insert rotation (degrees from normal)				
Arrangement Number	NORMAL DC or 60 Hz (see fig 2)	Alternate (see fig 2) 400 Hz		
		W	X	Y
28 – 04 28 – 05	0 °	---	---	180°
28 – 06 28 – 07	0°	---	---	---
28 – 12 28 – 13	0°	---	---	180°
28 – 03 28 – 02	0°	---	---	---

NOTES:

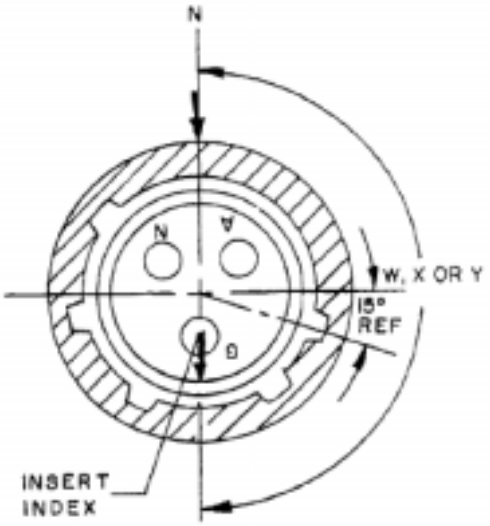
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Metric equivalents are in parentheses.
4. Unless otherwise specified, tolerance is ± .002 (.05 mm).
5. Unless otherwise specified, front face of pin insert pattern is shown. Socket inserts are the reverse.
6. Trademark and 28-( ) shall appear in available space. Contact identifying letter shall be located so as to identify relative contact.
7. Only the pin contact is lengthened and has the N (neutral) designation. The mating socket contact is the same as the power contact.

FIGURE 1. Insert arrangements, service D - Continued.



NOTES:
1. REF. MS90555******S.
2. REF. MS90557******S.
3. Front face of socket insert shown.

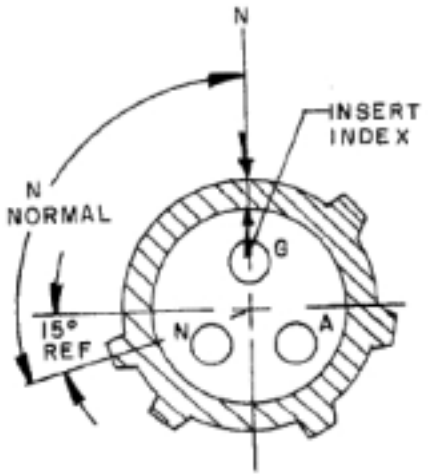
FIGURE 2a. Insert in normal position (60 Hz power only).



NOTES:
1. REF. MS90555******SY.
2. REF. MS90557******SY.
3. Front face of socket insert shown.

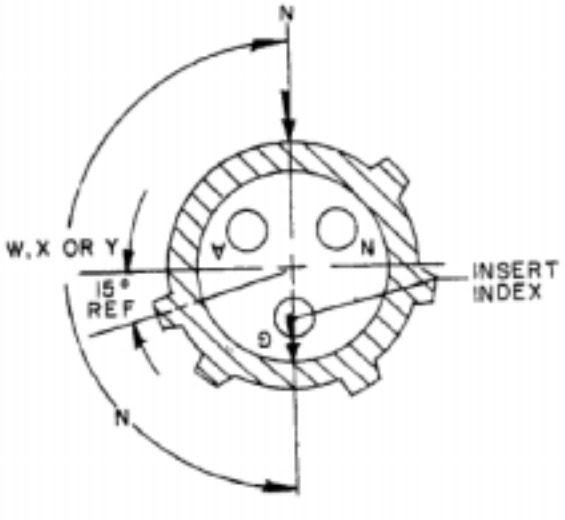
FIGURE 2b. Insert in alternate position (400 Hz power only).

FIGURE 2. Socket contact pattern and polarization.



NOTES:
1. REF. MS90556******P.
2. REF. MS90558******P.
3. Front face of pin insert shown.

FIGURE 2c. Insert in normal position (60 Hz power only).



NOTES:
1. REF. MS90556******PY.
2. REF. MS90558******PY.
3. Front face of pin insert shown.

FIGURE 2d. Insert in alternate position (400 Hz power only).

FIGURE 2. Socket contact pattern and polarization - Continued.

REQUIREMENTS:

Design and construction, see figures 1 and 2, and table 1.
Neutral pin (N) is not connected to shell.
Grounding pin (G) is connected to shell.
Applicable MS3348 crimp bushings shall be supplied with the contacts for insert arrangements as specified.

Table 1. Accessories.

Insert Arrangement	Contacts		Cable conductors MS90556 & MS90557 1/		Contact bushings required	
	QTY	SIZE	QTY	SIZE	QTY	P/N MS3348
28 – 02	2	6	2	B	2	6-BL
28 – 04	2	6	2	8	2	6-8L
	1	6	2	10(G)	-	-
28 – 06	3	6	3	8	3	6-8L
	1	4	3	12(G)	1	4-8L
28 – 07	3	6	3	7	-	-
	1	4	3	10(G)	1	4-6L
28 – 12	4	6	4	8	4	6-8L
	1	6	4	12G	-	-

1/ (G) Designates grounding.

Referenced documents. In addition to MIL-DTL-22992, this document references the following:

MIL-C-39029
MIL-C-3432
MS3348
MS90555
MS90556
MS90557
MS90558

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, CR4, MI
Navy – AS, CG, MC, OS, YD
Air Force – 11, 19

(Project 5935–4719–001)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935–4719-002.

INCH-POUND

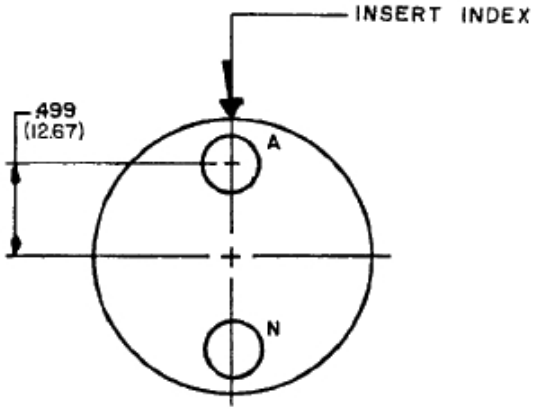
MS14055H
DRAFT
SUPERSEDING
MS14055G
10 December 2001

DETAIL SPECIFICATION SHEET

INSERT ARRANGEMENTS, ELECTRICAL CONNECTOR, SIZE 44, CLASS L, 100 AMPS

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

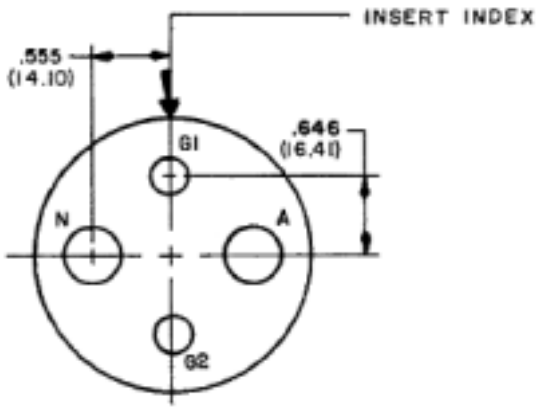


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
1	A	1/0	49-333	48-323
1	N	1/0N	49-333 See note 7	48-324

NOTES:
1. -02-Cable ICEA 2-NO 2 conductor round type W, 0 - 600 volts.
2. -03-Cable-C0-02-HDF (2/1) 1385 PER MIL-C-3432.
3. Mark 44-02 on 44-03 insert (see note 6 of figure 1).

FIGURE 1a. 28 volt DC two wire, -02 and -03 insert arrangements.

FIGURE 1. Insert arrangements, service D.

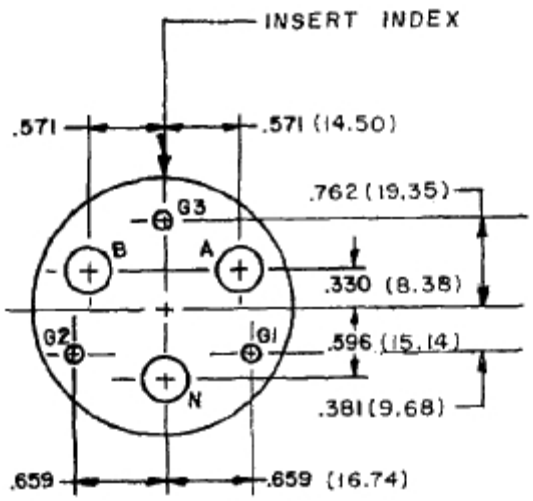


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
1	A	1/0	49-333	48-323
1	N	1/0N	49-333 See note 7	48-324
2	G1, G2	4G	49-3332	48-322

NOTES:
1. -04-Cable ICEA 2-NO 8 conductor round type G, 0 - 600 volts.
2. -05-Cable-C0-02-HDF (2/1-2/5R) 1385 PER MIL-C-3432.
3. Mark 44-04 on 44-05 insert (see note 6 of figure 1).

FIGURE 1b. AC single phase two wire grounding, -04 and -05 insert arrangements.

FIGURE 1. Insert arrangements, service D - Continued.

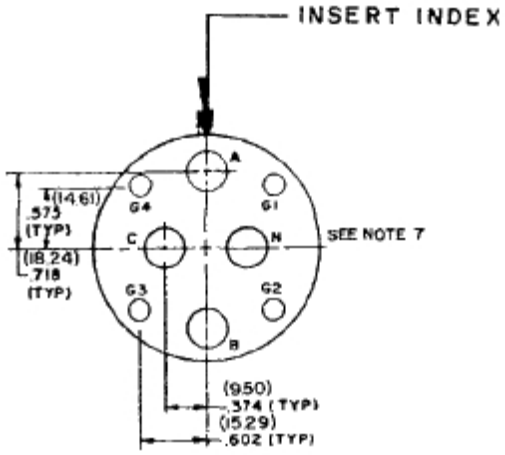


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
2	A, B	1/0	49-333	48-323
1	N	1/0N	49-333 See note 7	48-324
3	G1, G2, G3	6G	49-330	48-319

NOTES:
1. -06-Cable ICEA 3-NO 2 conductor round type G, 0 - 600 volts.

FIGURE 1c. AC single phase three wire grounding, -06 insert arrangements.

FIGURE 1. Insert arrangements, service D - Continued.



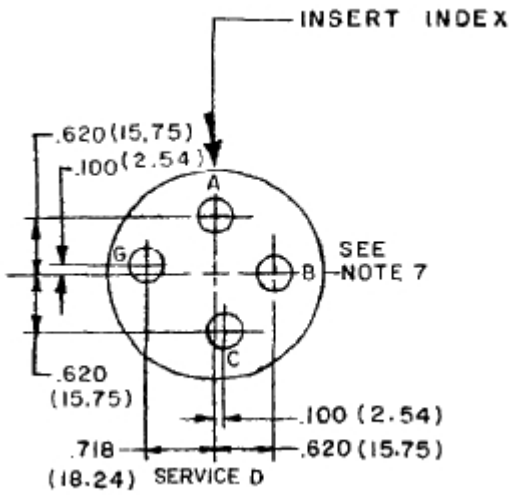
SERVICE D

QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
3	A, B, C	1/0	49-333	48-323
1	N	1/0N	49-333 See note 7	48-324
4	G1, G2, G3, G4	6G	49-330	48-319

NOTES:
1. -12-Cable ICEA 4-NO 2 conductor round type G, 0 - 600 volts.
2. -13-Cable-C0-04-HDF (4/1-4/8R) 1620 PER MIL-C-3432.
3. Mark 44-12 on 44-13 insert (see note 6 of figure 1).

FIGURE 1d. AC three phase four wire grounding, -12 and -13 insert arrangements.

FIGURE 1. Insert arrangements, service D - Continued.



QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
3	A, B, C	1/0	49-333	48-323
1	G	1/0N	49-333 See note 7	48-324

NOTES:
1. -50-four each NO 1 wire (receptacles only).
2. -51-Cable-ICEA 4-NO 1 conductor round type W, 0 - 600 volts, 1.68 inch OD.
3. -52-Cable-ICEA 4-NO 2 conductor round type W, 0 - 600 volts, 1.48 inch OD.
4. -56-Cable-ICEA 4-NO 6 conductor round type W, 0 - 600 volts, 1.10 inch OD.
5. Mark 44-50 on 44-51, 44-52 on 44-56 insert (see note 6 of figure 1).
6. For Navy ground support equipment use only (see note 8).

FIGURE 1e. AC three phase three wire grounding, -50, -51, -52 and -56 insert arrangements.

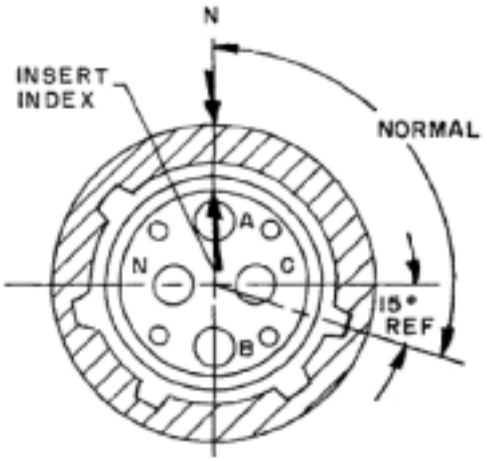
FIGURE 1. Insert arrangements, service D - Continued.

Insert rotation (degrees from normal)				
Arrangement Number	NORMAL DC or 60 Hz (see fig 2)	Alternate (see fig 2) 400 Hz		
		W	X	Y
44 – 02 44 – 03	0 °	---	---	---
44 – 04 44 – 05	0°	45°	---	---
4 – 06	0°	---	---	---
44 – 12 44 – 13	0 °	60°	---	---
44 – 50 44 – 51	0 °	---	---	---
44 – 52 44 – 56	0 °	---	---	---

NOTES:

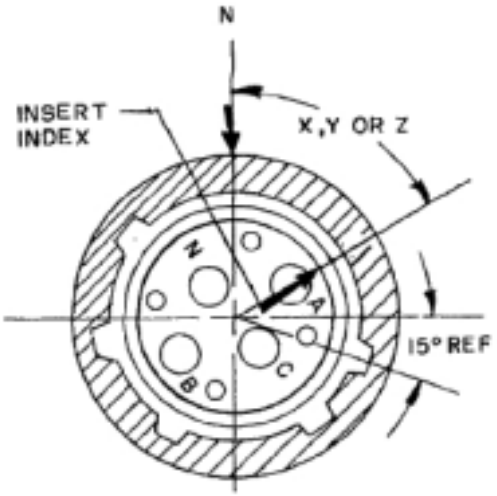
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Metric equivalents are in parentheses.
4. Unless otherwise specified, tolerance is ± .002 (.05 mm).
5. Unless otherwise specified, front face of pin insert pattern is shown. Socket inserts are the reverse.
6. Trademark and 44-( ) shall appear in available space. Contact identifying letter shall be located so as to identify relative contact.
7. Only the pin contact is lengthened and has the N (neutral) designation. The mating socket contact is the same as the power contact.
8. The contact position labeled (G) in the insert arrangement contains the 1/0N (neutral) size pin contact that is connected to the shell to form a grounding pin contact.

FIGURE 1. Insert arrangements, service D - Continued.



NOTES:
1. REF. MS90555******S.
2. REF. MS90557******S.
3. Front face of socket insert shown.

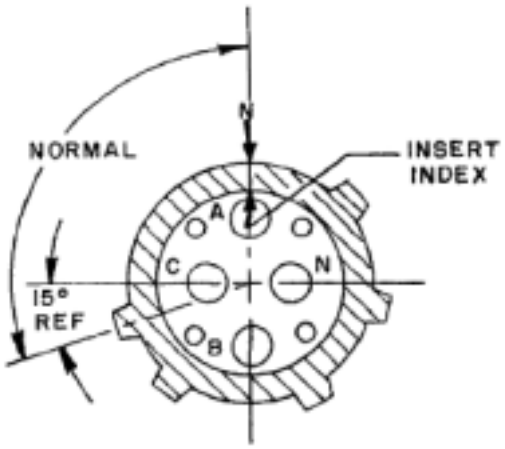
FIGURE 2a. Insert in normal position (60 Hz power only).



NOTES:
1. REF. MS90555******SZ.
2. REF. MS90557******SZ.
3. Front face of socket insert shown.

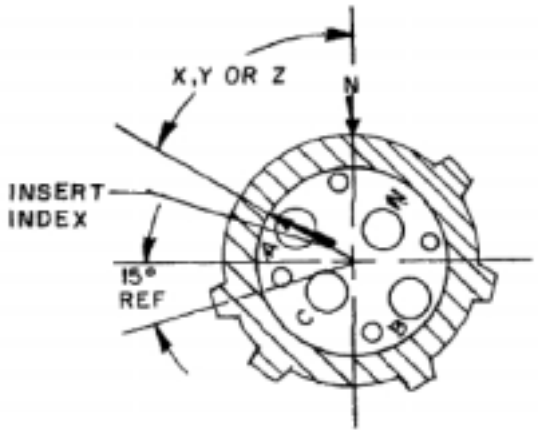
FIGURE 2b. Insert in alternate position (400 Hz power only).

FIGURE 2. Socket contact pattern and polarization.



NOTES:
1. REF. MS90556******P.
2. REF. MS90558******P.
3. Front face of pin insert shown.

FIGURE 2c. Insert in normal position (60 Hz power only).



NOTES:
1. REF. MS90556******PZ.
2. REF. MS90558******PZ.
3. Front face of pin insert shown.

FIGURE 2d. Insert in alternate position (400 Hz power only).

FIGURE 2. Socket contact pattern and polarization - Continued.

REQUIREMENTS:

Design and construction, see figures 1 and 2, and table 1.
Neutral pin (N) is not connected to shell.
Grounding pin (G) is connected to shell.
Applicable MS3348 crimp bushings shall be supplied with the contacts for insert arrangements as specified.

Table 1. Accessories.

Insert Arrangement	Contacts		Cable conductors MS90556 & MS90557		Contact bushings required	
	QTY	SIZE	QTY	SIZE	QTY	P/N MS3348-
44 – 02	2	1/0	2	2	2	1-2L
44 – 04	2 2	1/0 4	2 2	2 6(G)	2 2	1-2L 4-6L
44 – 05	2 2	1/0 4	2 2	2 5(G)	- 2	- 4-5L
44 – 06	3 3	1/0 6	3 3	2 8(G)	3 3	1-2L 6-8L
44 – 12	4 4	1/0 6	4 4	2 9(G)	4 4	1-2L 6-9L
44 – 13	4 4	1/0 6	4 4	1 8(G)	- 4	- 6-8L
44 – 52	4	1/0	4	2	4	1-2L
44 – 56	4	1/0	4	6	4	1-6L

Referenced documents. In addition to MIL-DTL-22992, this document references the following:

MIL-C-39029
MIL-C-3432
MS3348
MS90555
MS90556
MS90557
MS90558

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, CR4, MI
Navy – AS, CG, MC, OS, YD
Air Force – 19

(Project 5935–4719–002)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935–4719-003.

INCH-POUND

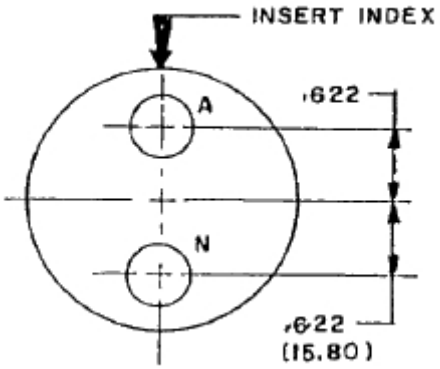
MS14057G
DRAFT
SUPERSEDING
MS14057F
11 June 2001

DETAIL SPECIFICATION SHEET

INSERT ARRANGEMENTS, ELECTRICAL CONNECTOR, SIZE 52, CLASS L, 200 AMPS

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

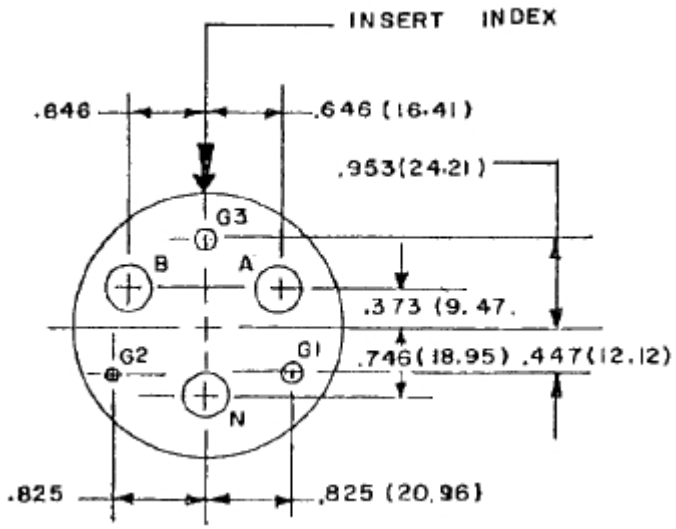


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
1	A	4/O	49-335	48-327
1	N	4/ON	49-335 See note 7	48-328

NOTES:
1. -02-ICEA 2-NO 2/0 conductor round type W cable, 0 - 600 volts.

FIGURE 1a. 28 volt DC two wire, -02 insert arrangement.

FIGURE 1. Insert arrangements, service D.

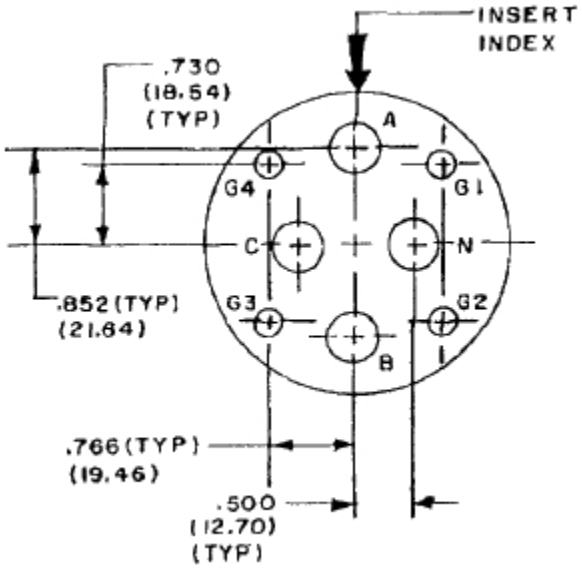


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
2	A, B	4/0	49-335	48-327
1	N	4/0N	49-335 See note 7	48-328
3	G1, G2, G3	4G	49-332	48-322

NOTES:
1. -06-ICEA 3-NO 2/0 conductor round type W cable, 0 - 600 volts.

FIGURE 1b. AC single phase three wire grounding, -06 insert arrangement.

FIGURE 1. Insert arrangements, service D - Continued.



QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
3	A, B, C	4/0	49-335	48-327
1	N	4/0N	49-335 See note 7	48-328
4	G1, G2, G3, G4	4G	49-332	48-322

NOTES:
1. -12-Cable ICEA 4-NO 4/0 conductor round type G cable, 0 - 600 volts.
2. -13-Cable-C0-04-HDE (4/0000-4/4R) 2380 in accordance with MIL-C-3432.
3. Mark 52-12 on 52-13 insert (see note 6 of figure 1).

FIGURE 1c. AC three phase four wire grounding, -12 and -13 insert arrangements.

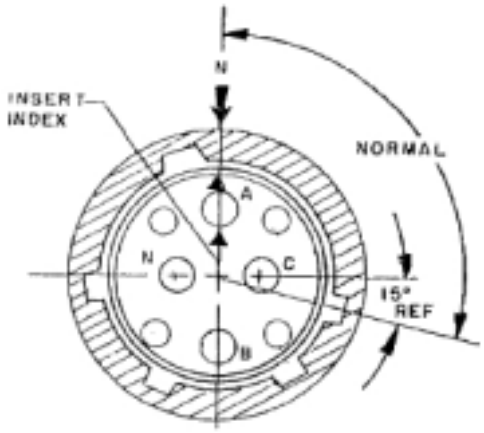
FIGURE 1. Insert arrangements, service D - Continued.

Insert rotation (degrees from normal)				
Arrangement Number	NORMAL DC or 60 Hz (see fig 2)	Alternate (see fig 2) 400 Hz		
		W	X	Y
52 – 02	0°	---	---	---
52 – 06	0°	---	---	---
52 – 12 52 – 13	0°	300°	---	---

NOTES:

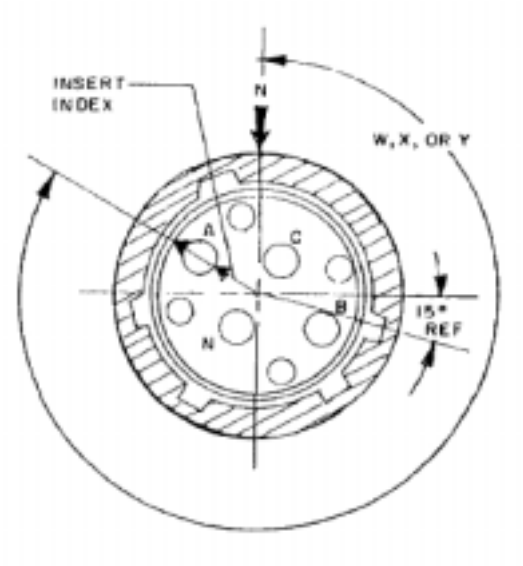
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Metric equivalents are in parentheses.
4. Unless otherwise specified, tolerance is ± .002 (.05 mm).
5. Unless otherwise specified, front face of pin insert pattern is shown. Socket inserts are the reverse.
6. Trademark and 52-( ) shall appear in available space. Contact identifying letter shall be located so as to identify relative contact.
7. Only the pin contact is lengthened and has the N (neutral) designation. The mating socket contact is the same as the power contact.

FIGURE 1. Insert arrangements, service D - Continued.



NOTES:
1. REF. MS90555******S.
2. REF. MS90557******S.
3. Front face of socket insert shown.

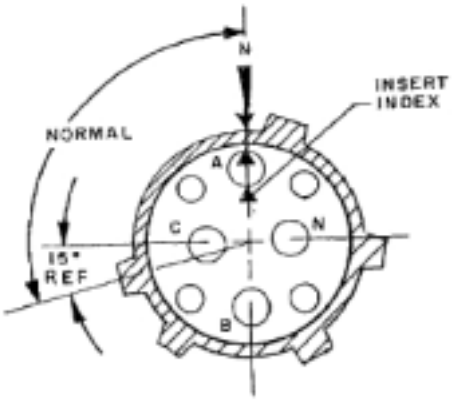
FIGURE 2a. Insert in normal position (60 Hz power only).



NOTES:
1. REF. MS90555******SW.
2. REF. MS90557******SW.
3. Front face of socket insert shown.

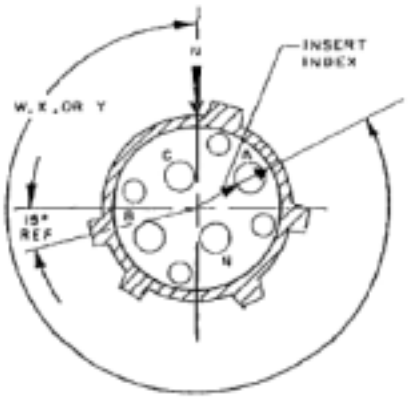
FIGURE 2b. Insert in alternate position (400 Hz power only).

FIGURE 2. Socket contact pattern and polarization.



NOTES:
1. REF. MS90556******P.
2. REF. MS90558******P.
3. Front face of pin insert shown.

FIGURE 2c. Insert in normal position (60 Hz power only).



NOTES:
1. REF. MS90556******PW.
2. REF. MS90558******PW.
3. Front face of pin insert shown.

FIGURE 2d. Insert in alternate position (400 Hz power only).

FIGURE 2. Socket contact pattern and polarization - Continued.

REQUIREMENTS:

Design and construction, see figures 1 and 2, and table 1.
Neutral pin (N) is not connected to shell.
Grounding pin (G) is connected to shell.
Applicable MS3348 crimp bushings shall be supplied with the contacts for insert arrangements as specified.

Table 1. Accessories.

Insert Arrangement	Contacts		Cable conductors MS90556 & MS90557		Contact bushings required	
	QTY	SIZE	QTY	SIZE	QTY	P/N MS3348
52 – 02	2	4/0	2	2/0	2	4/0 - 2/0L
28 – 06	3	4/0	3	2/0	3	4/0 - 2/0L
	3	4	3	5(G)	3	4 - 5L

Referenced documents. In addition to MIL-DTL-22992, this document references the following:

MIL-C-39029
MIL-C-3432
MS3348
MS90555
MS90556
MS90557
MS90558

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, CR4, MI
Navy – AS, CG, MC, SH, YD
Air Force – 19

(Project 5935–4719–003)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935–4719-004.

INCH-POUND

MS17342C
DRAFT
SUPERSEDING
MS17342B
11 June 2001

DETAIL SPECIFICATION SHEET

ADAPTER, STEP - UP, CABLE SEALING

This specification is approved for use by all Departments
and Agencies of the Department of Defense

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-22992.

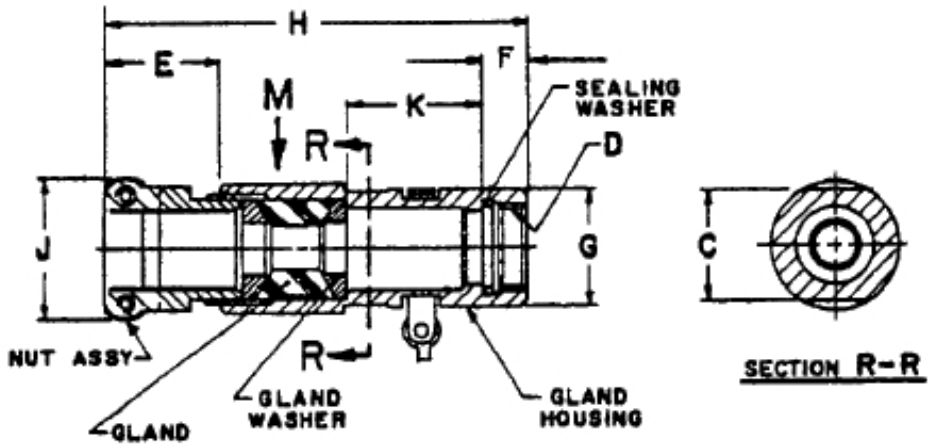


FIGURE 1. Style 1 adapter.

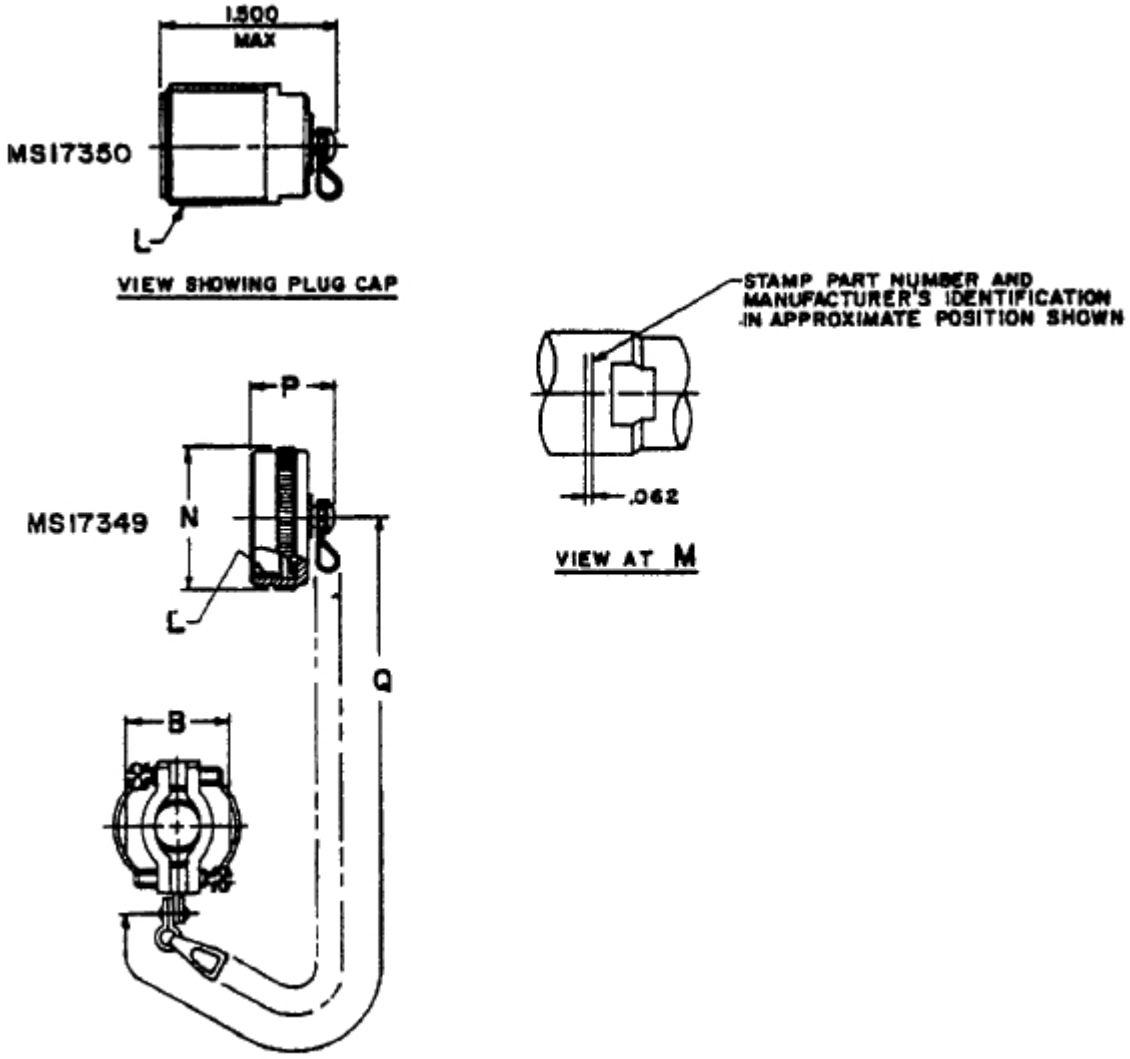


FIGURE 1. Style 1 adapter - Continued.

Adapter Size No	Size	Cable range		B + .000 - .010	C + .000 - .010	D Thread Class 2B-LH	E Free LG max	F ± .016
		max dia	min dia					
1	12	.530	.436	1.000	.0812	.7500-20UNEF	1.062	.479
2		.500	.406	.875	.938		0.969	
3		.405	.311	1.000	.812		1.062	
4	14	.605	.511		1.062	.8750-20UNEF		
5		.625	.531	1.062	1.125			
6		.530	.436	1.000	1.062			
7		.405	.311					
8	18	.828	.715	1.188	1.250	1.1250-18NEF	1.094	
9	20	.750	.637	1.312	1.375	1.2500-18NEF		
10		1.000	.875	1.546			1.281	
11		.900	.787	1.312			1.094	
12		1.055	.930	1.546			1.281	
13	22	1.000	.875		1.625	1.3750-18NEF		
14		1.109	.984					
15	24	1.180	1.055	1.780	1.875	1.6250-18NEF		
16		1.310	1.185					
17		1.230	1.105					
18		1.375	1.250	2.000				
19	28	1.445	1.320		2.062	1.8750-16UN		
20		1.531	1.406					
21		1.375	1.250			2.062-16UN		
22	32	1.656	1.531	2.250	2.312	2.0625-16N		
23		1.828	1.700	2.438			1.391	
24		1.562	1.437	2.250			1.281	
25		1.730	4.605	2.438			1.391	
26	36	1.900	1.775		2.500	2.3125-16N		
27		1.730	1.605			1.3125-16N		
28		1.825	1.700			2.3125-16N		
29		1.984	1.859					
30		2.062	1.917	2.750				
31	40	1.375	2.230	3.000	2.812	2.6250-16UN		.667
32		2.250	2.105	2.875	2.625			
33		2.145	2.000	2.750				
34		2.062	1.917					

FIGURE 1. Style 1 adapter - Continued.

Adapter Size No	Size	G dia +010 -020	H max	J ±.031	K .015 -.025	L Thread (plated) Class 2 (A or B)	N dia max	P max	Q see req 5
1	12	.938	4.275	1.375	1.219	.8750-O IP-0.2L-DS	1.094	.765	5.00
2			3.678	1.125	0.871				
3			4.275	1.375	1.219				
4	14	1.062	4.177		1.121	1.0000-OIP-0.2L-DS	1.219		
5			4.489	1.562	1.371				
6			4.177	1.375	1.121				
7									
8	18	1.312	4.584	1.688	1.343	1.2500-OIP-0.2L-DS	1.469	.980	
9	20	1.438	4.647	1.812	1.371	1.3750-OIP-0.2l-DS	1.562		
10			4.896	2.125					
11			4.647	1.812					
12			4.896	2.125					
13	22	1.562				1.5000-OIP-0.2L-DS	1.689		6.00
14									
15	24	1.812	4.959	2.469	1.372	1.7500-OIP-0.2L-DS	1.938		
16									
17									
18				2.625	1.309				
19	28	2.062	5.021		1.371	2.0000-OIP-0.2L-DS	2.219		
20									
21									
22	32	2.312	5.083	2.953	1.370	2.5000-OIP-0.2L-DS	2.469		
23			5.385	3.171	1.375				
24			5.083	2.953	1.370				
25			5.385	3.171	1.375	2.2500-OIP-0.2L-DS			
26	36	2.562	5.354		1.344	2.5000-OIP-0.2L-DS	2.719		
27									
28									
29									
30			5.385	3.375	1.375				
31	40	2.875	5.682	3.625	1.421	2.7500-OIP-0.2L-DS	2.969		
32				3.500					
33			5.620	3.375	4.422				
34					1.422				

FIGURE 1. Style 1 adapter - Continued.

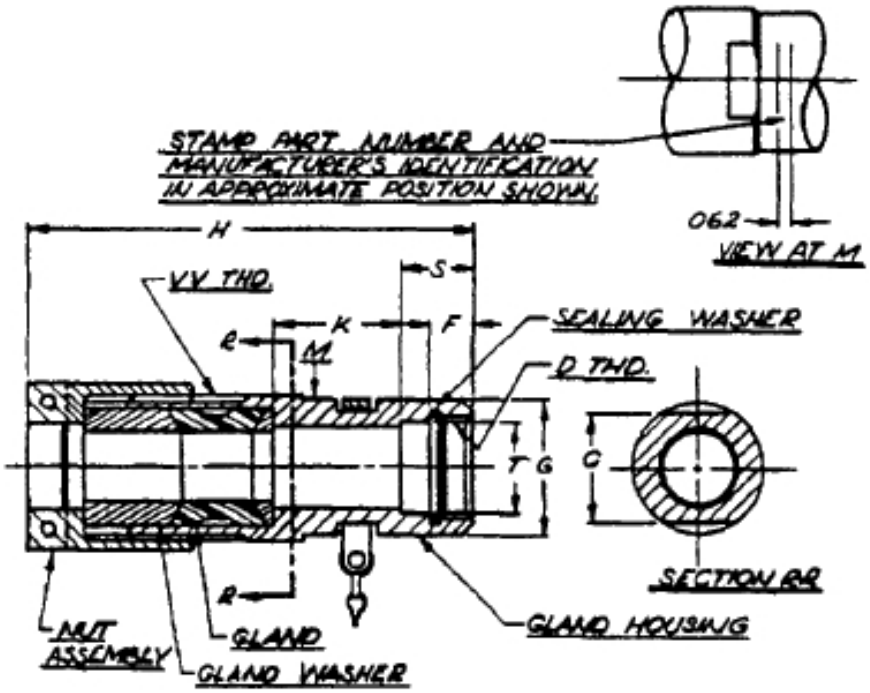


FIGURE 2. Style 2 adapter.

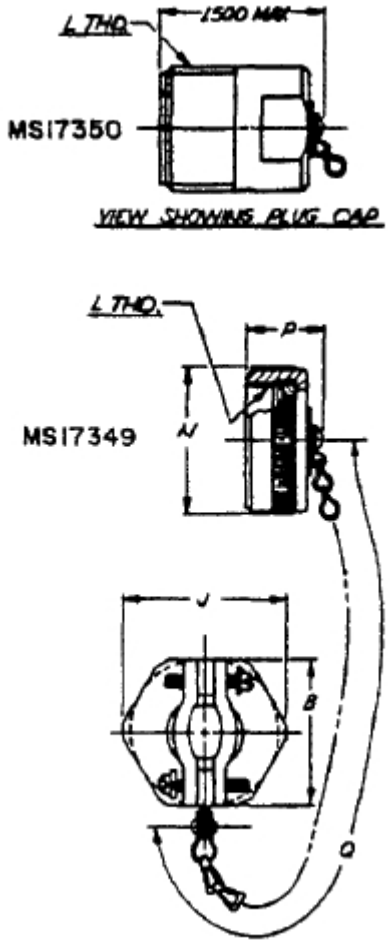


FIGURE 2. Style 2 adapter - Continued.

ADAPT SIZE NO.	SIZE	CABLE RANGE		B ± .005	C + .000 - .010	D THREAD CLASS 2B – LH
		MAX	MIN			
1	12	.521	.321	1.219	.938	0.7500-20 UNEF
2	14	.646	.446	1.344	1.062	0.8750-20 UNEF
3	16	.765	.565	1.469	1.188	1.0000-20 UNEF
4	18	.890	.690	4.625	1.312	1.1250-18 NEF
5	20	1.015	.815	1.750	1.438	1.2500-18 NEF
6	22	1.180	.980	2.000	1.562	1.3750-18 NEF
7	24	1.430	1.230	2.250	1.812	1.6250-18 NEF
8		1.230	1.030			
9	28	1.670	1.430	2.500	2.062	1.8750-18 UN
10	32	1.860	1.660	2.750	2.312	2.0625-16 N
11	36	2.110	1.860	3.062	2.562	2.3125-16 N
12	40	2.400	2.200	3.437	2.875	2.6250-16 UN
13		2.200	2.000			

FIGURE 2. Style 2 adapter - Continued.

ADAPT SIZE NO.	SIZE	F ± .016	G DIA + .010 - .020	H MAX	J MAX	K ± .010
1	12	.479	.938	4.000	1.320	.950
2	14		1.062	4.100	1.420	1.075
3	16		1.188	4.800	1.600	1.200
4	18		1.312	4.900	1.750	1.325
5	20		1.438		1.900	
6	22		1.562		2.190	
7	24		1.812	5.000	2.475	1.450
8						
9	28		2.062	5.300	2.715	1.700
10	32		2.312	5.600	2.900	1.950
11	36		2.562	4.900	3.250	
12	40	.667	2.875	5.725	3.625	
13		.667		4.725		

FIGURE 2. Style 2 adapter - Continued.

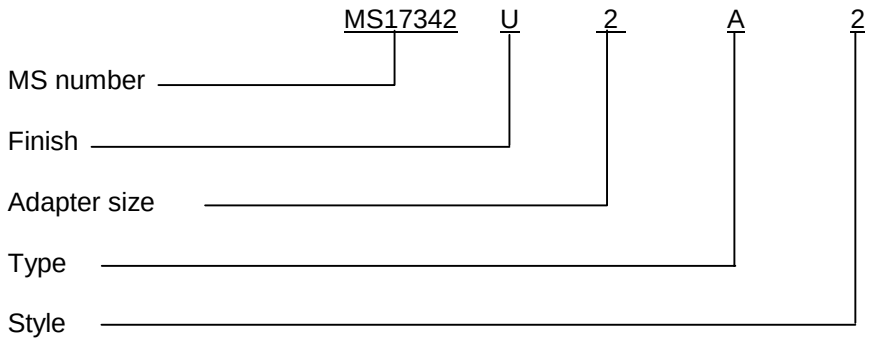
Adapter Size No.	Size	L Thread Class 2a/b	N dia max	P max	Q See Req. 5 Approx	S ± .010	T dia ± .005	Vv Gland threads Class 2 – Lh
1	12	.8750-0.1P-0.2l-DS	1.094	.765	5.00	1.425	.600	1.062-18 UNEF
2	14	1.0000-0.1P.2L-DS	1.219	.765			.726	1.1875-18 NEF
3	16	1.1250-0.1P-0.2L-DS	1.344	.980		1.605	.845	1.3125-18 NEF
4	18	1.2500-0.1P-0.2L-DS	1.469				.970	1.4375-18 NEF
5	20	1.3750-0.1P-0.2L-DS	1.562				1.095	1.5625-18 NEF
6	22	1.5000-0.1P-0.2L-DS	1.688		6.00		1.220	1.8125-16 N
7	24	1.7500-0.1P-0.2L-DS	1.938				1.470	2.0625-16 N
8	24							
9	28	2.0000-0.1P-0.2L-DS	2.219				1.713	2.3125-16 N
10	32	2.2500-0.1P-0.2L-DS	2.469				1.900	2.5000-16 UN
11	36	2.5000-0.1P-0.2L-DS	2.719				2.150	2.8750-16 UN
12	40	2.7500-0.1P-0.2L-DS	2.969				2.460	3.1250-16 UN
13	40		2.969					

FIGURE 2. Style 2 adapter - Continued.

REQUIREMENTS:

Design and construction, see figures 1 and 2, and table 1.
All dimensions are in inches. Unless otherwise specified, tolerance is ± .016.
Style 1 adapters are for use with class R and C connectors and Style 2 adapters are for use with class R, C and J connectors.
Style 1 and 2 adapters are for use with connectors MS17343.
Adapter finish shall be designated by the letter C (conductive) or N (non-conductive).
Adapter type shall be designated as A or B.
Type A is for use with connector MS17344.
Type B is for use with connectors MS17343, MS71345 and MS17347.
Adapter, Cap and chain is considered a complete assembly.
It is intended that connectors and their associated accessories be of the same finish (see PIN).
Chain shall be passivated stainless steel in accordance with type II, class 3, trade number 8 of RR-C-271 and shall be within one link of length specified.

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-22992, this document references the following:

MIL-C-39029
MS17343
MS17344
MS17345
MS17347
MS17349
MS17350
RR-C-271

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – CR4

(Project 5935–4719–004)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-005.

INCH-POUND

MS17343F
DRAFT
SUPERSEDING
MS17343E
11 June 2001

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, ELECTRICAL, WALL MOUNTING

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

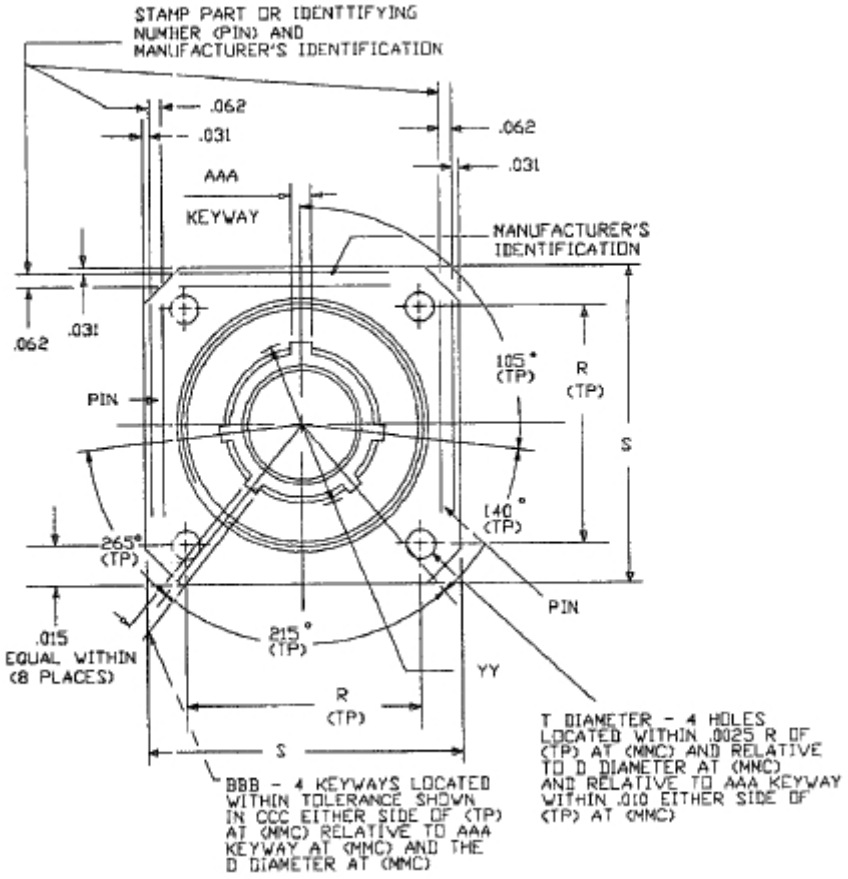


FIGURE 1. Dimensions and configuration.

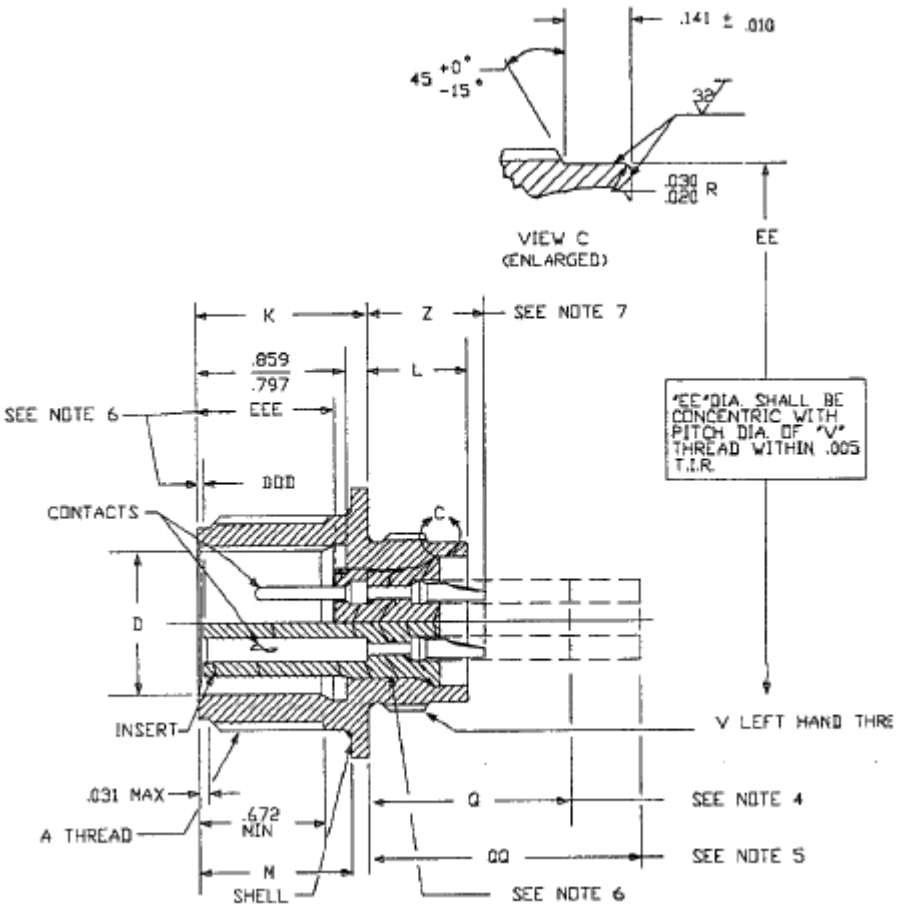


FIGURE 1. Dimensions and configuration. - Continued.

Size	A Thread (plated) class 2A	D Dia + .005 - .010	K + .005 - .020	L ± .020
12	0.8750-0.1P-0.2L-DS	.567	.938	.640
14	1.0000-0.1P-0.2L-DS	.692	.938	.640
16	1.1250-0.1P-0.2L-DS	.817	.938	.640
18	1.2500-0.1P-0.2L-DS	.942	.953	.625
20	1.3750-0.1P-0.2L-DS	1.068	.953	.625
22	1.5000-0.1P-0.2L-DS	1.192	.953	.625
24	1.7500-0.1P-0.2L-DS	1.317	1.047	.594
28	2.0000-0.1P-0.2L-DS	1.536	1.047	.594
32	2.2500-0.1P-0.2L-DS	1.786	1.111	.530
36	2.5000-0.1P-0.2L-DS	2.005	1.111	.530
40	2.7500-0.1P-0.2L-DS	2.255	1.111	.703
44	3.0000-0.1P-0.2L-DS	2.545	1.109	.703

Size	M + .010 - .000	Q Max	QQ Max	R (TP)	S + .021 - .020	T ± .005
12	.797	1.040	---	.906	1.188	.150
14	.797	1.040	1.590	.969	1.281	.150
16	.797	1.040	1.590	1.062	1.375	.150
18	.797	1.025	1.575	1.156	1.500	.177
20	.797	1.025	1.575	1.250	1.625	.177
22	.797	1.025	1.575	1.375	1.750	.177
24	.859	.931	1.481	1.562	2.000	.177
28	.859	.931	1.481	1.750	2.250	.177
32	.922	.867	1.417	1.938	2.500	.209
36	.922	.867	1.417	2.188	2.750	.209
40	.922	.867	1.417	2.375	3.000	.209
44	.922	NA	NA	2.625	3.250	.209

FIGURE 1. Dimensions and configuration. - Continued.

Size	V Thread (plated) class 2A LH	EE Dia +.001 -.007	YY Dia. +.010 -.006	AAA	BBB
12	.750-20 UNEF	.672	.647	.126 -.001, +.007	.063 -.001, +.007
14	.8750-20 UNEF	.797	.772		
16	1.0000-20 UNEF	.922	.897	.182 -.001, +.010	.108 -.001, +.010
18	1.1250-18 NEF	1.040	1.022		
20	1.2500-18 NEF	1.164	1.148		
22	1.3750-18 NEF	1.289	1.272		
24	1.6250-18 NEF	1.539	1.473	.260 -.001, +.010	.155 -.001, +.010
28	1.8750-16 UN	1.780	1.692		
32	2.0625-16 N	1.967	1.942		
36	2.3125-16 N	2.217	2.161		
40	2.6250-16 UN	2.530	2.411		
44	2.8750-16 UN	2.780	2.692		

FIGURE 1. Dimensions and configuration. - Continued.

<table>
<tr><th>Size</th><th>CCC</th><th>DDD
Socket Insert
Location
± .030</th><th>EEE
Pin Insert
Location
± .030</th><th>Z
Max
(see note 7)</th><th>Z
Min
(size D only)</th></tr>
<tr><td>12</td><td rowspan="2">.0035</td><td rowspan="11">.020</td><td rowspan="11">.729</td><td rowspan="3">.726</td><td rowspan="3">NA</td></tr>
<tr><td>14</td></tr>
<tr><td>16</td><td rowspan="10">.007</td></tr>
<tr><td>18</td><td rowspan="3">.711</td></tr>
<tr><td>20</td><td rowspan="2">.780</td></tr>
<tr><td>22</td></tr>
<tr><td>24</td><td rowspan="2">.617</td><td rowspan="2">.686</td></tr>
<tr><td>28</td></tr>
<tr><td>32</td><td rowspan="3">.553</td><td rowspan="4">.622</td></tr>
<tr><td>36</td></tr>
<tr><td>40</td></tr>
<tr><td>44</td><td>.039</td><td>.744</td><td>.797</td></tr>
</table>

FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.622	15.80	.969	24.61	1.5000	38.100	2.3125	58.738
.0035	0.089	.625	15.86	1.000	25.400	1.500	38.105	2.375	60.33
.005	0.13	.640	16.26	1.022	25.96	1.536	39.01	2.411	61.24
.006	0.15	.647	16.43	1.025	25.958	1.539	39.09	2.375	60.33
.007	0.18	.672	17.07	1.040	25.42	1.562	39.67	2.411	60.24
.010	0.25	.686	17.34	1.047	26.59	1.575	40.01	2.5000	63.500
.020	0.51	.692	17.58	1.062	26.97	1.5900	40.39	2.500	63.50
.021	0.53	.703	17.86	1.068	27.13	1.6250	41.275	2.530	64.25
.030	0.76	.711	18.06	1.109	28.17	1.625	41.28	2.6250	66.675
.031	0.79	.726	18.44	1.111	28.22	1.692	42.98	2.625	66.68
.039	0.99	.729	18.52	1.1250	28.575	1.7500	44.45	2.692	68.38
.062	1.57	.7500	19.050	1.148	29.16	1.750	44.45	2.7500	69.850
.063	1.60	.764	19.40	1.156	29.36	1.786	45.36	2.750	69.85
.108	2.74	.772	19.61	1.164	39.57	1.8750	47.623	2.780	70.61
.126	3.20	.780	19.81	1.188	30.18	1.938	49.23	2.8750	73.020
.141	3.58	.797	20.24	1.192	31.28	1.942	49.33	3.0000	76.200
.150	3.81	.817	20.75	1.2500	31.750	1.967	49.96	3.000	76.20
.155	3.94	.859	21.82	1.250	31.75	2.0000	50.800	3.125	79.38
.177	4.50	.867	22.02	1.272	32.31	2.000	50.80	3.250	82.55
.182	4.62	.8750	22.225	1.281	32.54	2.005	50.93		
.209	5.31	.897	22.78	1.289	32.74	2.0625	52.388		
.260	6.60	.906	23.01	1.317	33.45	2.161	54.89		
.530	13.46	.922	23.42	1.3750	34.925	2.1885	55.58		
.553	14.06	.932	23.65	1.375	34.93	2.217	56.31		
.567	14.40	.938	23.65	1.417	35.99	2.2500	57.150		
.594	15.09	.942	23.93	1.473	37.41	2.250	57.15		
.617	15.67	.953	24.21	1.481	37.62	2.255	57.28		

NOTES:

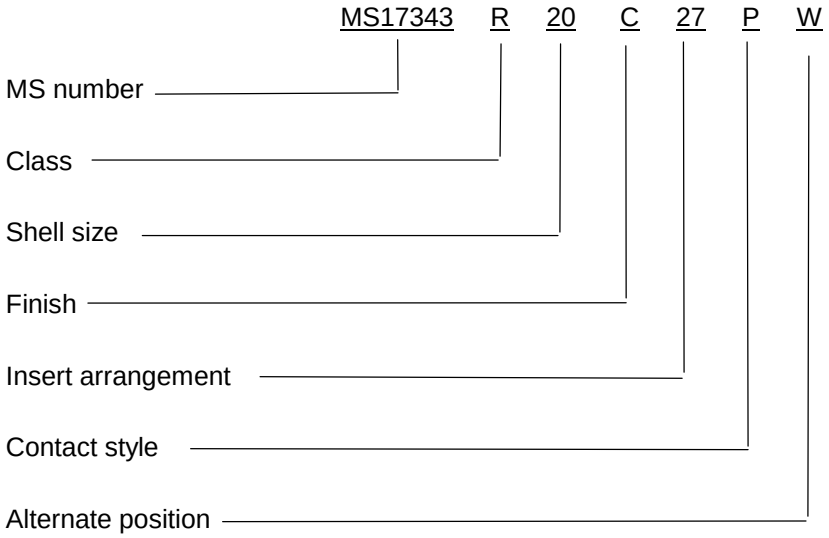
1. All dimensions are in inches.
2. Unless otherwise specified tolerances are ± .016 inch (0.41 mm).
3. Metric equivalents are given for information only.
4. Maximum termination of grommet extension for sizes 12 and 16 contacts for class J.
5. Maximum termination of grommet extension for sizes 0, 4, and 8 contacts for class J.
6. Dimensions shall be maintained when inserts are pressed firmly against indicated shoulder.
7. For size 0 contacts only, increase Z dimension by .312 inch (7.92 mm) for shell sizes 12 through 40 and by .062 inch (1.57 mm) for shell size 44.

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Mates with plugs shown on MS17344 and covers shown on MS17349.
Class shall be designated by the letter C (pressurized), J (pressurized with grommet) or R (environmental resisting).
For shell size, insert arrangement, alternate position, contact size, spacing and service rating, See MIL-STD-1651.
Shell finish shall be designated by the letter C (conductive) or N (nonconductive).

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS17344
MS17349
MIL-STD-1651

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AR, MI
Navy – AS, CG, MC, OS, SH, YD
Air Force – 19, 99

(Project 5935–4719–005)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935–4719-006.

INCH-POUND

MS17344F
DRAFT
SUPERSEDING
MS17344E
11 June 2001

DETAIL SPECIFICATION SHEET

CONNECTOR, PLUG, ELECTRICAL, STRAIGHT

This specification is approved for use by all Departments
and Agencies of the Department of Defense

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-22992.

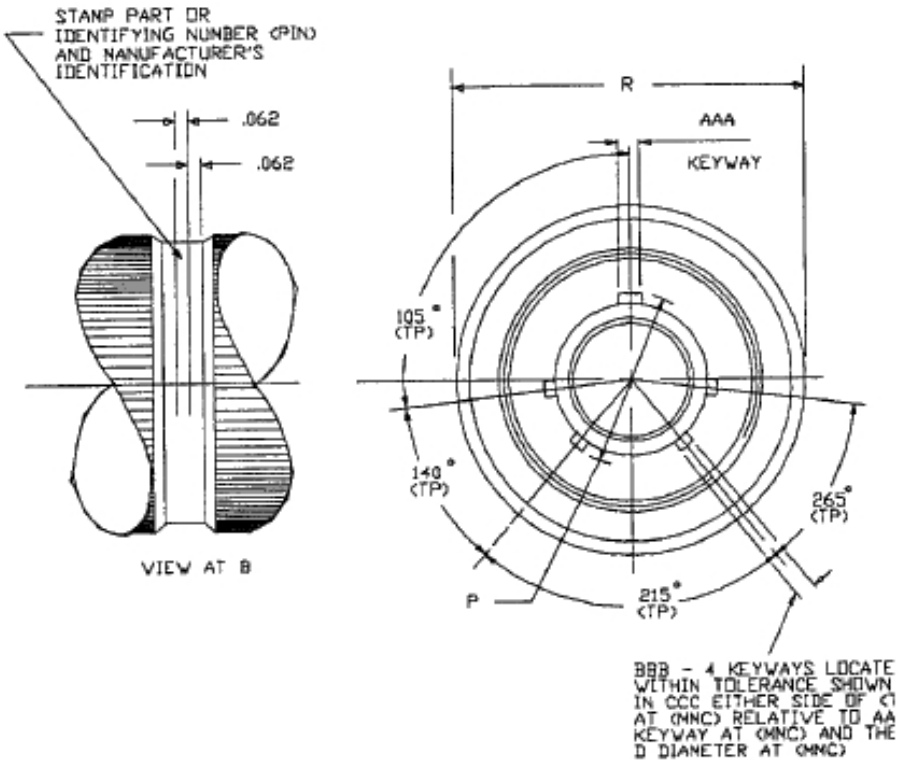


FIGURE 1. Dimensions and configuration.

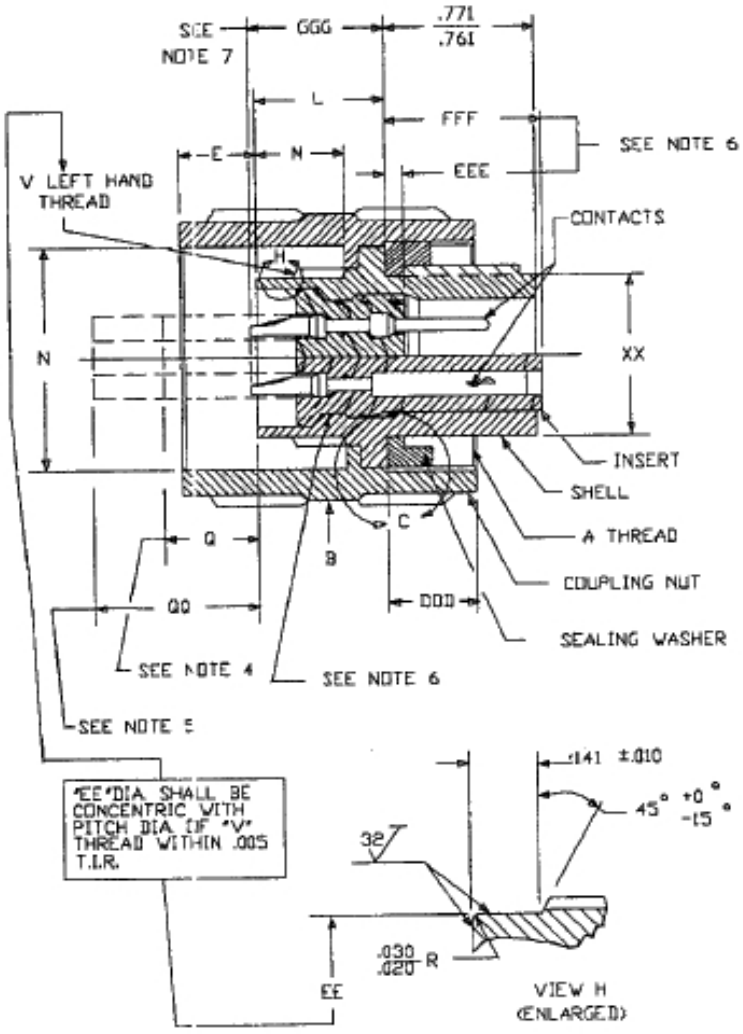
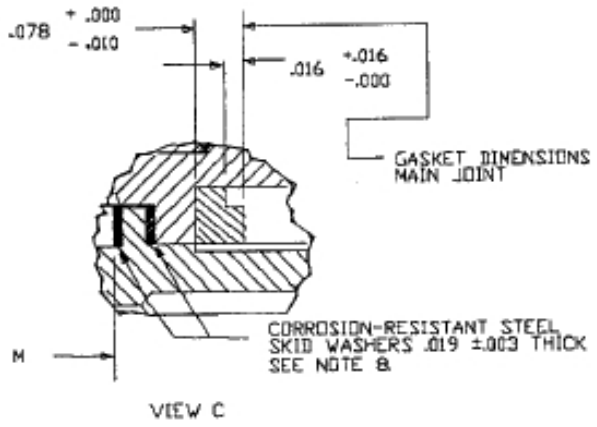


FIGURE 1. Dimensions and configuration. - Continued.



Size	A Thread (plated) class 2A	E max	L + .011 - .010	M ± .031
12	0.8750-0.1P-0.2L-DS	.100	.738	.529
14	1.0000-0.1P-0.2L-DS			
16	1.1250-0.1P-0.2L-DS	.150		
18	1.2500-0.1P-0.2L-DS	.275		
20	1.3750-0.1P-0.2L-DS			
22	1.5000-0.1P-0.2L-DS			
24	1.7500-0.1P-0.2L-DS		.800	
28	2.0000-0.1P-0.2L-DS			
32	2.2500-0.1P-0.2L-DS		.875	
36	2.5000-0.1P-0.2L-DS	.300		
40	2.7500-0.1P-0.2L-DS	.100	1.041	.717
44	3.0000-0.1P-0.2L-DS	.109		

FIGURE 1. Dimensions and configuration. - Continued.

Size	N + .010 - .001	P + .010 - .005	Q max	QQ max	R dia max
12	.985	.627	.477	---	1.156
14	1.109	.752		1.027	1.281
16	1.235	.877			1.469
18	1.359	1.002			1.563
20	1.485	1.128			1.688
22	1.609	1.252			1.844
24	1.859	1.453		.967	2.094
28	2.109	1.672			2.344
32	2.359	1.922	.342	.892	2.594
36	2.609	2.141			2.844
40	2.922	2.391			3.156
44	3.172	2.672	NA	NA	3.406

FIGURE 1. Dimensions and configuration. - Continued.

Size	V Thread (plated) class 2A LH	EE Dia + .001 - .007	XX Dia. + .010 - .006	AAA	BBB
12	.7500-20 UNEF	.672	.647	.115 +.001, -.007	.047 -.007, +.001
14	.8750-20 UNEF	.797	.674		
16	1.0000-20 UNEF	.922	.897	.172 -.010, +.001	.078 -.010, +.001
18	1.1250-18 NEF	1.040	.929		
20	1.2500-18 NEF	1.164	1.052		
22	1.3750-18 NEF	1.289	1.177		
24	1.6250-18 NEF	1.539	1.302	.250 -.010, +.001	.125 -,010, +.001
28	1.8750-16 UN	1.780	1.522		
32	2.0625-16 N	1.967	1.772		
36	2.3125-16 N	2.217	1.982		
40	2.6250-16 UN	2.530	2.232		
44	2.8750-16 UN	2.780	2.522		

FIGURE 1. Dimensions and configuration. - Continued.

Size	CCC	DDD	EEE Pin Insert Location ± .030	FFF Socket Insert Location ± .030	GGG Max.
12	.0035	.655 .593	.084	.793	.898
14					
16	.007				
18					
20					
22					
24					
28					
32		.677 .610			
36		.701 .634			
40		.679 .618			
44			.049	.774	1.062

FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.300	7.62	.8750	20.32	1.302	33.07	2.141	54.38
.003	0.08	.342	8.69	.875	20.42	1.359	34.52	2.217	56.31
.0035	0.089	.417	10.59	.877	22.225	1.3750	34.925	2.232	56.697
.005	0.13	.477	15.49	.892	22.23	1.453	33.91	2.2500	57.050
.006	0.15	.529	13.44	.898	22.28	1.469	37.31	2.3125	58.737
.007	0.18	.554	14.07	.922	22.66	1.485	37.72	2.344	59.54
.010	0.25	.593	15.06	.929	22.81	1.5000	38.100	2.359	59.92
.011	0.28	.610	15.49	.967	23.42	1.522	38.66	2.391	60.730
.016	0.41	.618	15.70	.985	23.60	1.539	39.09	2.5000	63.500
.019	0.48	.627	15.98	1.000	24.40	1.563	39.70	2.522	34.06
.020	0.51	.655	16.64	1.002	24.45	1.609	40.87	2.530	64.265
.030	0.76	.672	17.07	1.027	26.09	1.6250	41.275	2.594	65.89
.031	0.79	.674	17.12	1.040	26.42	1.672	42.47	2.6250	66.675
.047	1.19	.677	17.12	1.041	26.44	1.688	42.88	2.629	66.78
.049	1.24	.679	17.25	1.052	26.72	1.7500	44.458	2.672	67.87
.062	1.57	.701	17.81	1.062	26.97	1.772	45.01	2.7500	69.850
.078	1.98	.717	18.21	1.109	28.17	1.780	45.21	2.750	70.61
.084	2.13	.738	18.75	1.1250	28.575	1.844	46.845	2.844	72.24
.100	2.54	.7500	19.050	1.128	28.65	1.859	48.22	2.8750	73.035
.109	2.77	.752	19.10	1.156	29.36	1.8750	47.625	2.922	74.22
.115	2.92	.761	19.33	1.164	29.57	1.9225	48.81	3.0000	76.00
.125	3.18	.771	19.58	1.177	29.90	1.967	49.96	2.156	80.16
.141	3.58	.774	19.66	1.235	31.37	1.982	50.34	3.172	80.57
.150	3.81	.793	20.14	1.2500	31.750	2.000	50.800	3.406	86.51
.172	4.37	.797	20.24	1.252	31.80	2.0625	52.388		
.250	6.35	.800	20.14	1.281	31.54	2.096	53.19		
.275	6.99	.804	20.24	1.289	32.74	2.109	53.570		

NOTES:

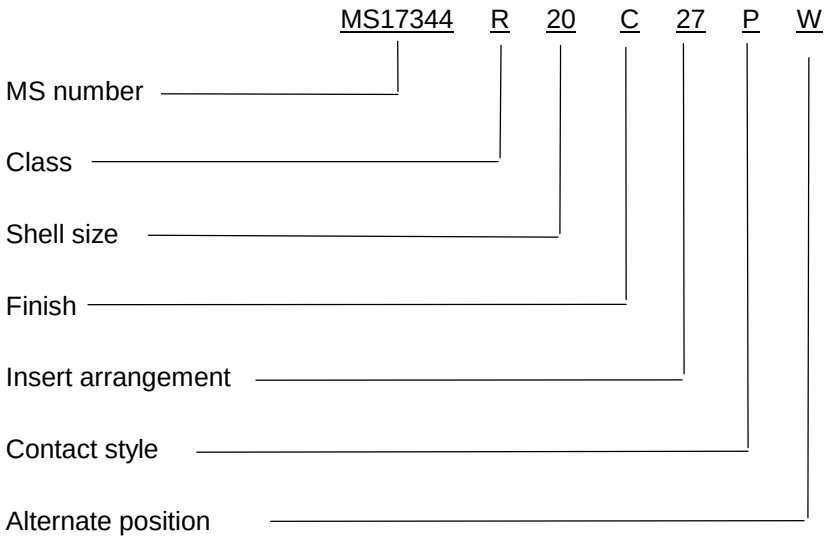
1. All dimensions are in inches.
2. Unless otherwise specified tolerances are ± .016 inch (0.41 mm).
3. Metric equivalents are given for information only.
4. Maximum termination of grommet extension for sizes 12 and 16 contacts for class J.
5. Maximum termination of grommet extension for sizes 0, 4, and 8 contacts for class J.
6. Dimensions shall be maintained when inserts are pressed firmly against indicated shoulder.
7. Dimensions shall be 1.210 (30.73 mm) maximum to .920 (23.37 mm) minimum for size 0 contacts only.
8. Front and rear washers for sizes 32 and 36 only. Rear washers only for sizes 40 and 44 only.

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Mates with plugs shown on MS17343, MS17345 through MS17348, MS18062 and covers shown on MS17350.
Class shall be designated by the letter C (pressurized), J (pressurized with grommet) or R (environmental resisting).
For shell size, insert arrangement, alternate position, contact size, spacing and service rating, see MIL-STD-1651.
Shell finish shall be designated by the letter C (conductive) or N (nonconductive).

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS17343
MS17345
MS17346
MS17347
MS17348
MS17350
MS18062
MIL-STD-1651

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AR, MI
Navy – AS, CG, MC, OS, SH, YD
Air Force – 19, 99

(Project 5935–4719–006)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-007.

INCH-POUND

MS17345E
DRAFT
SUPERSEDING
MS17345D
11 June 2001

DETAIL SPECIFICATION SHEET

CONNECTOR, PLUG, ELECTRICAL, CABLE CONNECTING, FEMALE

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

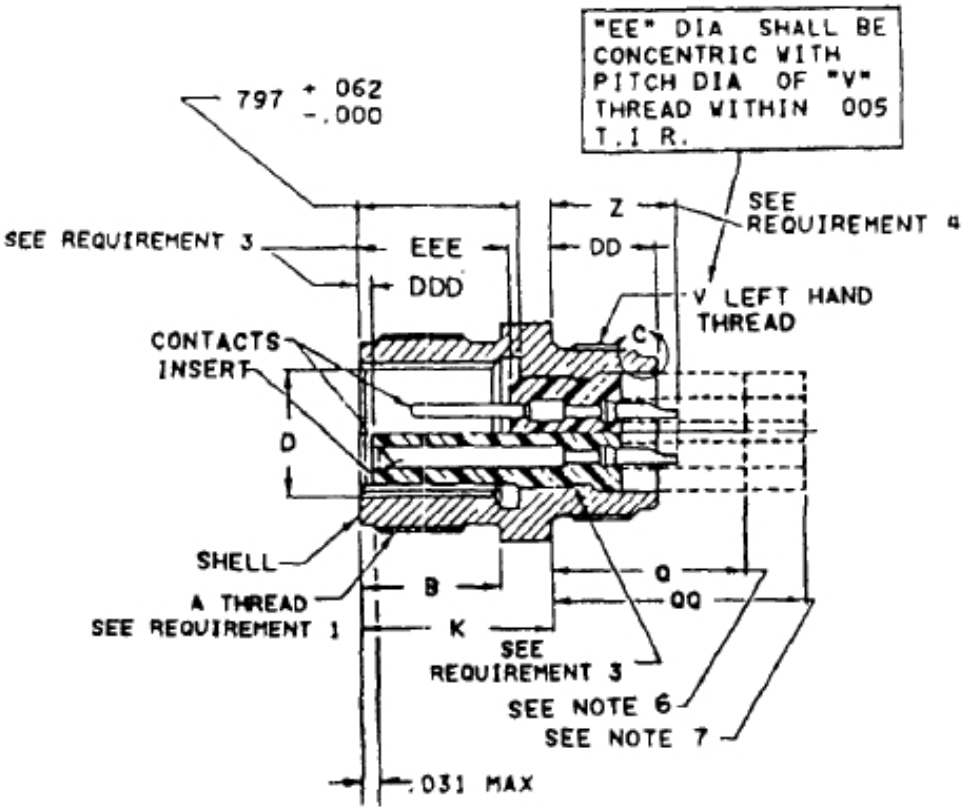


FIGURE 1. Dimensions and configuration.

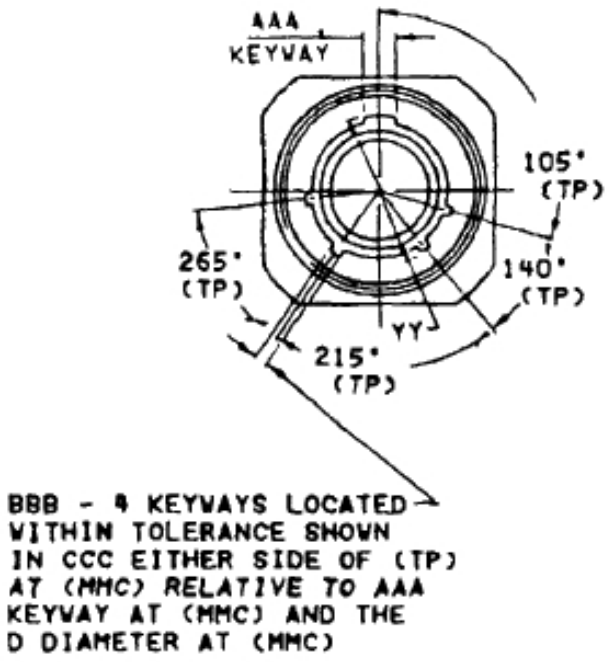


FIGURE 1. Dimensions and configuration. - Continued.

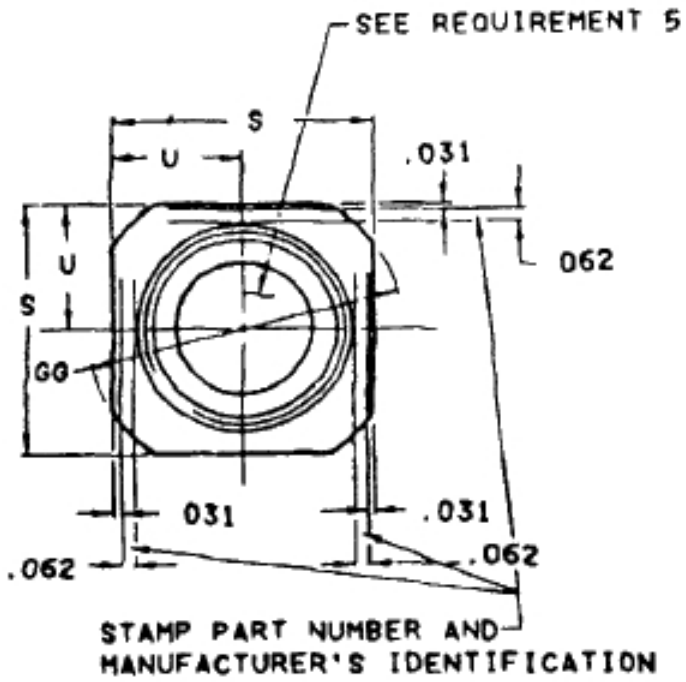
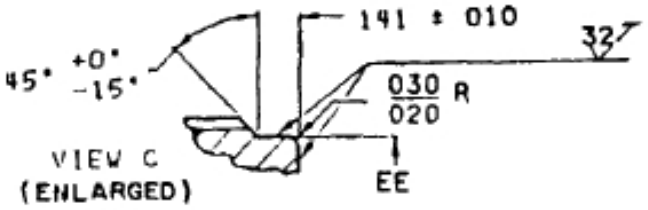


FIGURE 1. Dimensions and configuration. - Continued.



Size	A Thread (plated) class 2A	B + .016 - .000	D Dia + .005 - .010	K + .021 - .020
12	0.8750-0.1P-0.2L-DS	.688	.567	.938
14	1.0000-0.1P-0.2L-DS		.692	
16	1.1250-0.1P-0.2L-DS		.817	
18	1.2500-0.1P-0.2L-DS	.703	.942	.953
20	1.3750-0.1P-0.2L-DS		1.068	
22	1.5000-0.1P-0.2L-DS		1.192	
24	1.7500-0.1P-0.2L-DS	.766	1.016	.977
28	2.0000-0.1P-0.2L-DS		1.536	1.016
32	2.2500-0.1P-0.2L-DS	.703	1.786	1.078
36	2.5000-0.1P-0.2L-DS		2.005	
40	2.7500-0.1P-0.2L-DS		2.255	
44	3.0000-0.1P-0.2L-DS		2.545	

FIGURE 1. Dimensions and configuration. - Continued.

Size	Q Max.	QQ Max.	S + .021 - .020	U ± .010	V Thread (plated) class 2A LH
12	1.055	--	1.000	.500	.7500-20 UNEF
14		1.605	1.094	.547	.8750-20 UNEF
16			1.281	.641	1.0000-20 UNEF
18	1.040	1.590	1.375	.688	1.1250-18 NEF
20			1.500	.750	1.2500-18 NEF
22			1.625	.812	1.3750-18 NEF
24	1.527	1.875	1.875	.938	1.6250-18 NEF
28	.977	1.527	2.125	1.062	1.8750-16 UN
32	.915	1.465	2.375	1.188	2.0625-16 N
36			2.625	1.312	2.3125-16 N
40			3.000	1.500	2.6250-16 UN
44	NA	NA	3.250	1.625	2.8750-16 UN

FIGURE 1. Dimensions and configuration. - Continued.

Size	DD ± .010	EE Dia + .001 - .007	GG Dia.	YY Dia + .010 - .006	AAA	BBB
12	.641	.672	1.250	.647	.126 -.001, +.007	.063 -.001, +.007
14		.797	1.375	.772		
16		.922	1.500	.897	.182 -.001, +.010	.108 -.001, +.010
18	.625	1.040	1.625	1.022		
20		1.164	1.750	1.148		
22		1.289	1.875	1.272		
24		1.539	2.125	1.473	.260 -.001, +.010	.155 -.001, +.010
28		1.780	2.37	1.692		
32	.563	1.967	2.625	1.942		
36		2.217	2.875	2.161		
40	.703	2.530	3.125	2.411		
44		2.780	3.500	2.692		

FIGURE 1. Dimensions and configuration. - Continued.

<table>
<tr><th>Size</th><th>CCC</th><th>DDD
Socket Insert
Location
± .030</th><th>EEE
Pin Insert
Location
± .030</th><th>Z
Max</th><th>Z
Min
(size D only)</th></tr>
<tr><td>12</td><td rowspan="2">.0035</td><td rowspan="12">.020</td><td rowspan="12">.729</td><td rowspan="2">.726</td><td rowspan="3">NA</td></tr>
<tr><td>14</td></tr>
<tr><td>16</td><td rowspan="11">.007</td></tr>
<tr><td>18</td><td rowspan="3">.711</td></tr>
<tr><td>20</td><td rowspan="2">.780</td></tr>
<tr><td>22</td></tr>
<tr><td>24</td><td rowspan="2">.648</td><td rowspan="2">.717</td></tr>
<tr><td>28</td></tr>
<tr><td>32</td><td rowspan="3">.576</td><td rowspan="4">.655</td></tr>
<tr><td>36</td></tr>
<tr><td>40</td></tr>
<tr><td>44</td><td>.039</td><td>.764</td><td>.797</td></tr>
</table>

FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.686	17.34	1.068	27.13	1.786	45.36
.0035	0.089	.688	17.48	1.078	27.97	1.8750	47.630
.005	0.13	.692	17.58	1.094	28.78	1.875	47.63
.006	0.15	.703	17.86	1.1250	28.575	1.942	49.33
.007	0.18	.711	18.06	1.148	29.16	1.967	49.96
.010	0.25	.717	18.21	1.1640	29.57	2.0000	50.800
.016	0.41	.726	14.44	1.188	30.18	2.005	50.93
.020	0.51	.729	18.52	1.192	30.28	2.0625	52.588
.021	0.53	.7500	19.050	1.2500	31.750	2.125	53.98
.030	0.76	.750	19.05	1.250	31.75	2.161	54.89
.031	0.79	.764	19.41	1.272	32.31	2.217	56.31
.039	0.99	.766	19.46	1.281	32.54	2.2500	57.150
.062	1.57	.772	19.61	1.289	33.74	2.255	57.28
.063	1.60	.780	19.81	1.312	33.32	2.3125	58.737
.108	2.74	.797	20.24	1.317	33.45	2.375	60.33
.126	3.20	.812	20.62	1.3750	34.925	2.411	61.24
.141	3.58	.817	20.75	1.375	34.93	2.5000	63.500
.155	3.94	.8750	22.225	1.465	37.21	2.530	64.26
.182	4.62	.897	22.78	1.473	37.41	2.545	64.64
.260	6.60	.915	23.24	1.5000	38.100	2.6250	66.675
.500	12.70	.922	23.42	1.500	38.10	2.625	67.31
.547	13.89	.938	23.82	1.527	38.79	2.692	68.38
.563	14.30	.942	23.93	1.536	39.01	2.7500	69.850
.567	14.40	.953	24.21	1.539	39.09	2.764	70.21
.576	14.63	.977	24.82	1.590	40.39	2.780	70.61
.622	15.80	.10000	25.400	1.605	40.77	2.8750	73.025
.625	15.86	1.000	25.40	1.6250	41.275	2.875	73.03
.641	16.28	.1.016	25.81	1.625	41.28	3.0000	76.200
.647	16.43	1.022	25.96	1.692	42.98	3.000	76.20
.648	16.45	1.040	24.41	1.7500	44.450	3.125	79.38
.655	16.64	1.055	26.80	1.750	44.45	3.250	82.55
.672	17.06	1.062	26.97	1.780	45.21	3.500	88.90

NOTES:

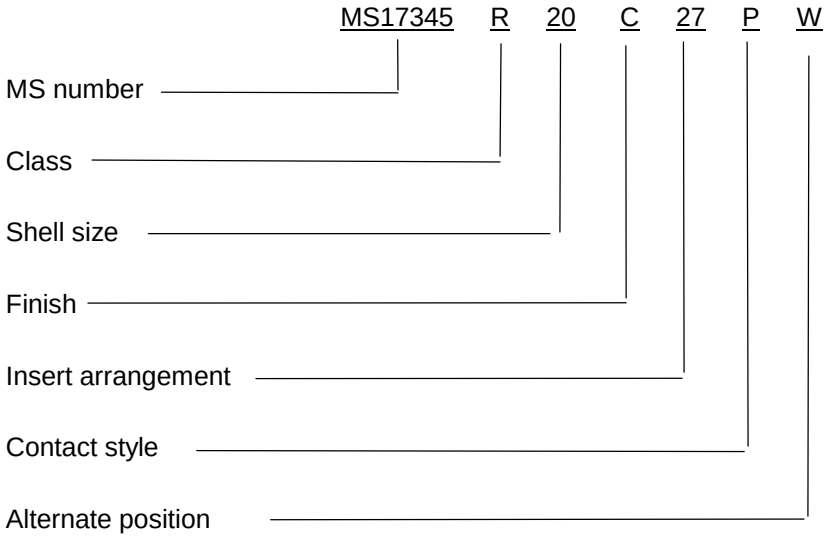
1. All dimensions are in inches.
2. Unless otherwise specified tolerances are ± .016 inch (0.41 mm).
3. Metric equivalents are given for information only.
4. Maximum termination of grommet extension for sizes 12 and 16 contacts for class J.
5. Maximum termination of grommet extension for sizes 0, 4 and 8 contacts for class J.
6. For protective cover, see MS17349, type A.

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Mates with plug MS17344.
Dimensions shall be maintained when inserts are pressed firmly against indicated shoulder.
For size 0 contacts only, increase X dimension by .312 (7.92 mm) for shell sizes 12 through 40 and by .062 (1.57 mm) for shell size 44.
For size, insert arrangement, alternate position, contact size, spacing and service rating, see MIL-STD-1651.
Shell finish shall be designated by the letter C (conductive) or N (nonconductive).

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS17344
MS17349
MIL-STD-1651

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AR, MI
Navy – AS, CG, MC, OS, YD
Air Force – 19

(Project 5935–4719–007)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-008.

INCH-POUND

MS17346E
DRAFT
SUPERSEDING
MS17346D
11 June 2001

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, ELECTRICAL, BOX MOUNTING

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

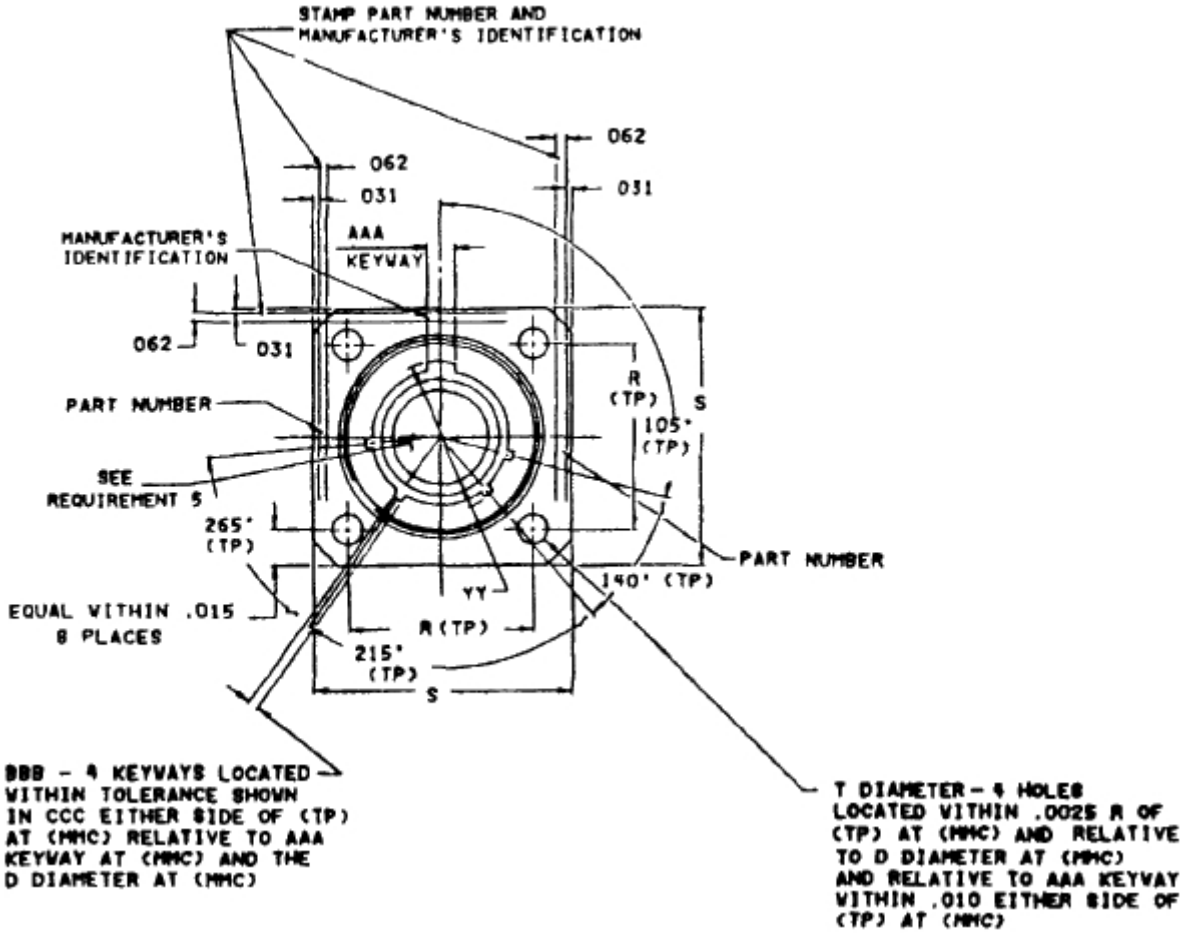


FIGURE 1. Dimensions and configuration.

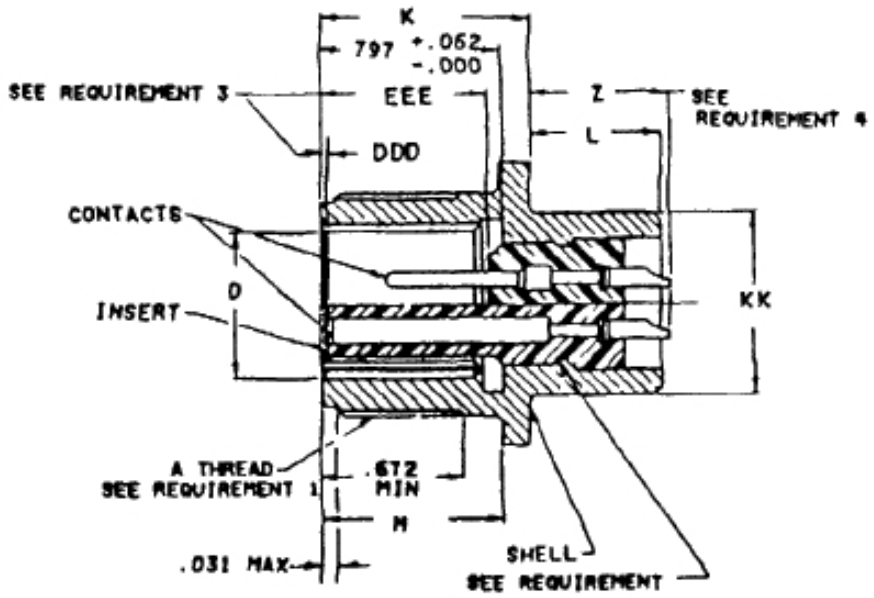


FIGURE 1. Dimensions and configuration. - Continued.

Size	A Thread (plated) class 2A	D dia + .005 - .010	K + .021 - .010	L + .020 - .030
12	0.8750-0.1P-0.2L-DS	.567	.938	.640
14	1.0000-0.1P-0.2L-DS	.692		
16	1.1250-0.1P-0.2L-DS	.817		
18	1.2500-0.1P-0.2L-DS	.942	.953	.625
20	1.3750-0.1P-0.2L-DS	1.068		
22	1.5000-0.1P-0.2L-DS			
24	1.7500-0.1P-0.2L-DS	1.317	1.047	.594
28	2.0000-0.1P-0.2L-DS	1.536		
32	2.2500-0.1P-0.2L-DS	1.786	1.110	.531
36	2.5000-0.1P-0.2L-DS	2.005		
40	2.7500-0.1P-0.2L-DS	2.255		
44	3.0000-0.1P-0.2L-DS	2.545		

FIGURE 1. Dimensions and configuration. - Continued.

Size	N + .010 - .000	R (TP)	S + .021 - .020	T Dia ± .005	KK Dia. + .011 - .010
12	.797	.906	1.188	.150	.640
14		.969	1.281		.765
16		1.062	1.375		.890
18		1.156	1.500	.177	1.015
20		1.250	1.625		1.171
22		1.375	1.750		1.296
24	.859	1.562	2.000		1.421
28		1.750	2.250		1.625
32	.922	1.938	2.500	.209	1.891
36		2.188	2.750		2.078
40		2.375	3.000		2.312
44		2.625	3.250		2.562

FIGURE 1. Dimensions and configuration. - Continued.

Size	YY Dia + .010, - .006	AAA	BBB	CCC
12	.647	.126 -.001, +.007	.063 -.001, +.007	.0035
14	.772			
16	.897	.182 -.001, +.010	.108 -.001, +.010	.007
18	1.022			
20	1.148			
22	1.272			
24	1.473	.260 -.001, +.010	.155 -.001, +.010	
28	1.692			
32	1.942			
36	2.161			
40	2.411			
44	2.692			

FIGURE 1. Dimensions and configuration. - Continued.

<table>
<tr><th>Size</th><th>DDD
Socket Insert
location
± .030</th><th>EEE
Pin Insert
location
± .030</th><th>Z
Max</th><th>Z
Min
Size D only</th></tr>
<tr><td>12</td><td rowspan="10">.020</td><td rowspan="11">.729</td><td>.738</td><td rowspan="3">NA</td></tr>
<tr><td>14</td><td rowspan="2">.738</td></tr>
<tr><td>16</td></tr>
<tr><td>18</td><td rowspan="3">.723</td><td rowspan="2">.780</td></tr>
<tr><td>20</td></tr>
<tr><td>22</td><td rowspan="2">.660</td><td rowspan="2">.686</td></tr>
<tr><td>24</td></tr>
<tr><td>28</td><td rowspan="4">.540</td><td rowspan="4">.622</td></tr>
<tr><td>32</td></tr>
<tr><td>36</td></tr>
<tr><td>40</td></tr>
<tr><td>44</td><td>.039</td><td>.764</td></tr>
</table>

FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.625	15.88	1.015	25.78	1.750	44.45
.0035	0.089	.640	16.26	1.022	25.96	1.786	45.36
.005	0.13	.647	16.43	1.047	26.59	1.891	48.03
.006	0.15	.660	16.76	1.062	26.97	1.938	49.23
.007	0.18	.672	17.06	1.068	27.13	1.942	49.33
.010	0.25	.686	17.42	1.110	28.19	2.0000	50.800
.011	0.28	.692	17.58	1.1250	28.575	2.000	50.80
.020	0.51	.723	18.36	1.148	29.16	2.005	50.93
.021	0.53	.729	18.52	1.156	29.36	2.078	52.78
.030	0.76	.738	18.75	1.171	29.74	2.161	52.78
.031	0.79	.764	19.41	1.168	30.18	2.188	54.89
.039	0.99	.765	19.43	1.2500	31.750	2.2500	55.58
.062	1.57	.772	19.61	1.250	31.75	2.250	57.150
.063	1.60	.780	19.81	1.272	32.31	2.255	57.15
.108	2.74	.797	20.24	1.281	32.54	2.312	57.27
.126	3.20	.817	20.75	1.296	32.91	2.375	58.72
.150	3.81	.859	21.81	1.317	33.45	2.411	60.33
.155	3.93	.8750	22.225	1.3750	34.925	2.5000	61.24
.177	4.50	.890	22.61	1.375	34.93	2.500	63.500
.182	4.62	.897	22.78	1.421	36.09	2.545	63.50
.209	5.30	.906	23.01	1.473	37.41	2.562	64.64
.260	6.60	.922	23.42	1.500	38.10	2.625	65.07
.531	13.49	.938	23.82	1.536	39.01	2.692	66.68
.540	13.72	.942	23.93	1.562	39.67	2.7500	68.37
.567	14.40	.953	24.21	1.625	41.27	2.750	69.850
.594	15.09	.969	24.61	1.692	42.98	3.0000	69.85
.622	15.80	1.0000	25.400	1.7500	44.450	3.000	76.20
						3.250	82.55

NOTES:

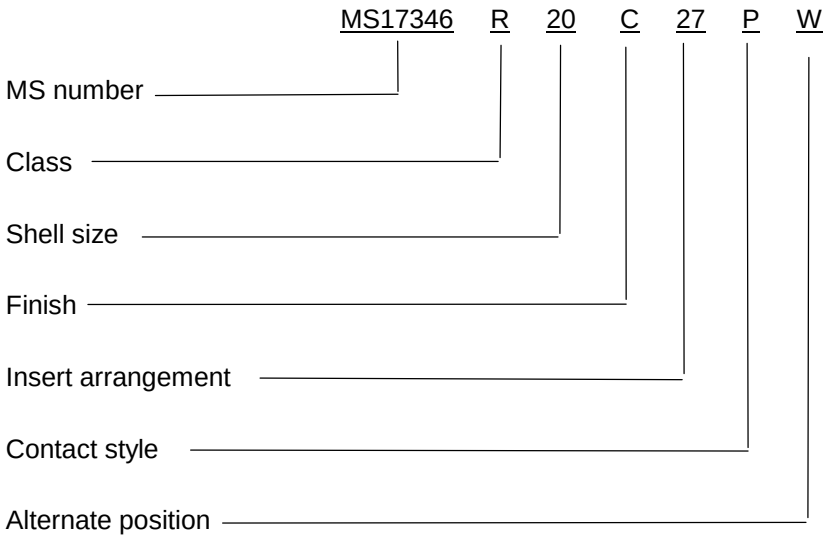
1. All dimensions are in inches.
2. Unless otherwise specified tolerances are ±.016 inch (0.41 mm).
3. Metric equivalents are given for information only.
4. For protective cover, see MS17349.

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Mates with plugs shown on MS17344.
Dimensions shall be maintained when inserts are pressed firmly against indicated shoulder.
For size 0 contacts only, increase X dimension by .312 (7.92 mm) for shell sizes 12 through 40 and by .062 (1.57 mm) for shell size 44.
For size, insert arrangement, alternate position, contact size, spacing and service rating, see MIL-STD-1651.
Shell finish shall be designated by the letter C (conductive) or N (nonconductive).

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS17344
MS17349
MIL-STD-1651

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AR, MI
Navy – AS, CG, MC, OS, YD
Air Force – 19

(Project 5935–4719–008)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-009.

INCH-POUND

MS17349D
DRAFT
SUPERSEDING
MS17349C
12 June 2001

DETAIL SPECIFICATION SHEET

COVER, PROTECTIVE, ELECTRICAL CONNECTOR, RECEPTACLE

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

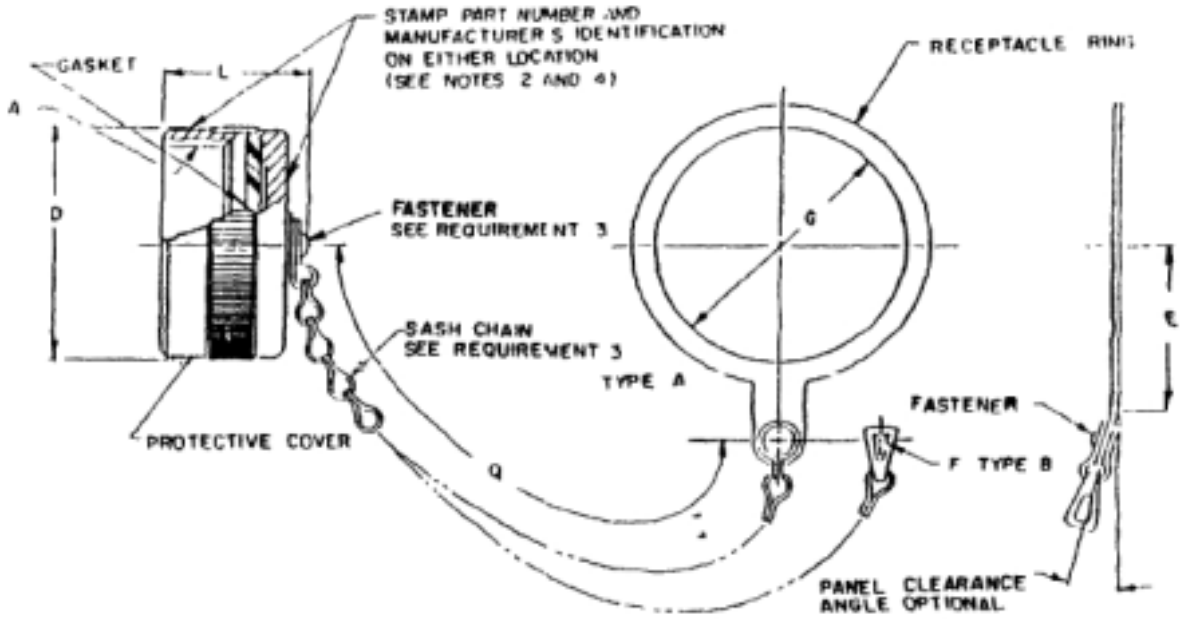


FIGURE 1. Dimensions and configuration.

Size	Type	A Thread class 2B	L Max.	Q	D Max	E Min	F See Note 4	G Min.
12	A	0.8750-0.1P-0.2L-DS	.765	5.00	1.094	.83	6	1.016
12	B							
14	A	1.0000-0.1P-0.2L-DS			1.219	.87	6	1.141
14	B							
16	A	1.1250-0.1P-0.2L-DS	.980		1.344	.97	6	1.266
16	B							
18	A	1.2500-0.1P-0.2L-DS			1.469	1.01	8	1.391
18	B							
20	A	1.3750-0.1P-0.2L-DS			1.562	1.12	8	1.516
20	B							
22	A	1.5000-0.1P-0.2L-DS		6.00	1.688	1.19	8	1.641
22	B							
24	A	1.7500-0.1P-0.2L-DS			1.938	1.33	8	1.891
24	B							
28	A	2.0000-0.1P-0.2L-DS			2.219	1.48	8	2.141
28	B							
32	A	2.2500-0.1P-0.2L-DS			2.469	1.62	10	2.391
32	B							
36	A	2.5000-0.1P-0.2L-DS			2.719	1.77	10	2.641
36	B							
40	A	2.7500-0.1P-0.2L-DS			2.969	1.91	10	2.891
40	B							
44	A	3.0000-0.1P-0.2L-DS			3.219	2.05	10	3.141
44	B							

FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm	Inches	mm
.765	19.43	1.33	33.8	2.000	50.800
.83	21.1	1.344	34.14	2.05	52.07
.87	22.1	1.3750	34.925	2.141	54.38
.8750	22.225	1.391	35.33	2.219	56.36
.97	24.6	1.469	37.31	2.2500	57.150
.980	24.89	1.48	37.6	2.391	60.73
1.0000	25.400	1.5000	38.100	2.469	62.71
1.01	25.7	1.516	38.51	2.5000	63.500
1.016	25.81	1.562	39.67	2.641	67.08
1.094	27.79	1.62	41.1	2.719	69.06
1.12	28.4	1.641	41.68	2.7500	69.850
1.1250	28.575	1.688	42.86	2.891	73.43
1.141	28.98	1.7500	44.450	2.969	75.41
1.19	30.2	1.77	45.0	3.000	76.20
1.219	30.96	1.891	45.0	3.149	79.78
1.2500	31.75	1.91	48.03	3.219	81.76
1.266	32.16	1.938	48.5	5.00	127.0
				6.00	152.4

NOTES:

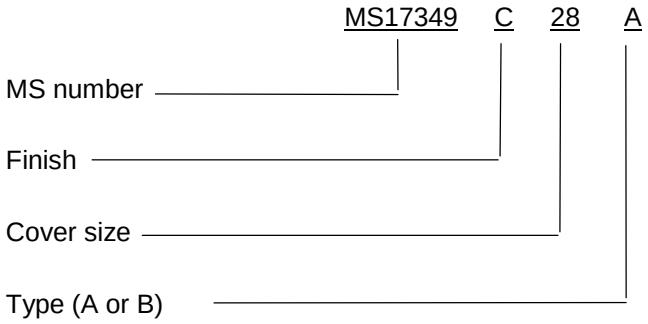
1. All dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified tolerances are ± .016 (0.41 mm).
4. F clearance to accommodate screw size indicated.

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Cover type shall be designated as A or B. Type A is used for MS17345, MS17347, and MS17348, and the type B is used for MS17343 and MS17346.
Chain shall be passivated stainless steel in accordance with type II, Class 3, trade number 8 of RR-C-271 and shall be within one link of length specified. Chain shall move freely on protective cap after assembly.
Cover finishshall be designated by the letter C (conductive) or N (nonconductive).

Part or Identifying Number (PIN) example:



Qualification:

Visual and mechanical examination.
Humidity.
Durability.
Salt spray (corrosion).
Tensile.
Water immersion.

Group A sampling inspection. 100% inspection is not applicable, sampling inspection shall be in accordance with table I:

TABLE I. Group A sampling plan.

Lot size	Sampling size
1 to 13	100 percent
14 to 150	13 units
151 to 280	20 units
281 to 500	29 units
501 to 1,200	34 units
1,201 to 3.200	42 units

Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS17343
MS17345
MS17346
MS17347
MS17348
RR-C-271

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – CR, CR4, MI
Navy – AS, CG, MC, OS
Air Force – 19

(Project 5935–4719–009)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-010.

INCH-POUND

MS17350A
DRAFT
SUPERSEDING
MS17350
12 June 2001

DETAIL SPECIFICATION SHEET

COVER, PROTECTIVE, CONNECTOR, PLUG

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

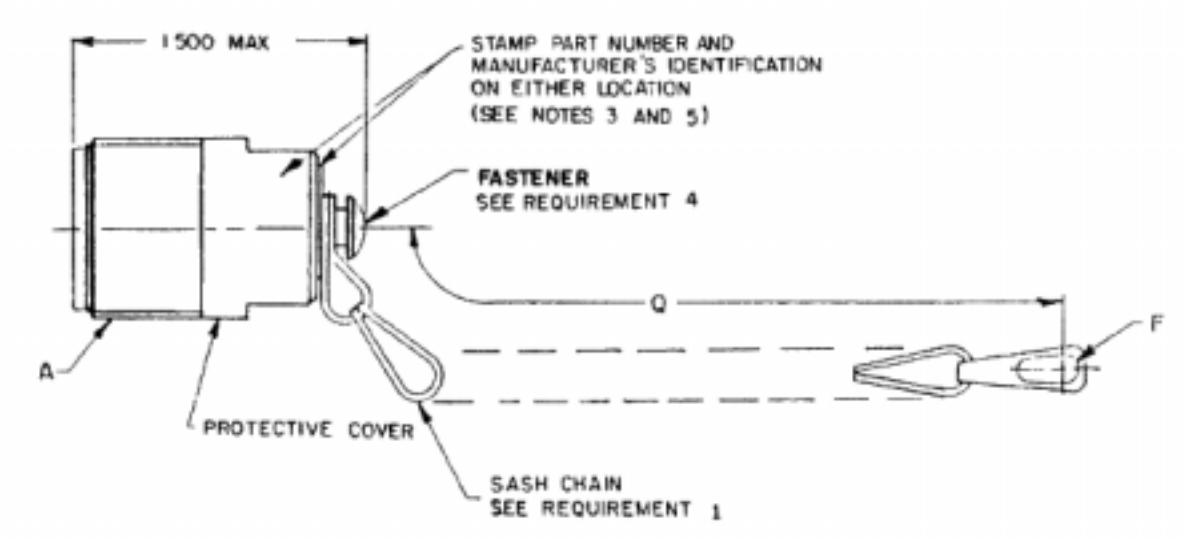


FIGURE 1. Dimensions and configuration.

Size	A Thread class 2B	Q	F See Note 4
12	0.8750-0.1P-0.2L-DS	5.00	6
14	1.0000-0.1P-0.2L-DS		
16	1.1250-0.1P-0.2L-DS		
18	1.2500-0.1P-0.2L-DS		8
20	1.3750-0.1P-0.2L-DS		
22	1.5000-0.1P-0.2L-DS	6.00	
24	1.7500-0.1P-0.2L-DS		
28	2.0000-0.1P-0.2L-DS		
32	2.2500-0.1P-0.2L-DS		10
36	2.5000-0.1P-0.2L-DS		
40	2.7500-0.1P-0.2L-DS		
44	3.0000-0.1P-0.2L-DS		

FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm
.8750	22.225	2.0000	50.800
1.0000	25.400	2.2500	57.150
1.1250	28.575	2.5000	63.500
1.2500	31.750	2.7500	69.850
1.3750	34.925	3.0000	76.200
1.5000	38.100	5.00	127.0
1.500	38.10	6.00	152.4
1.7500	50.800		

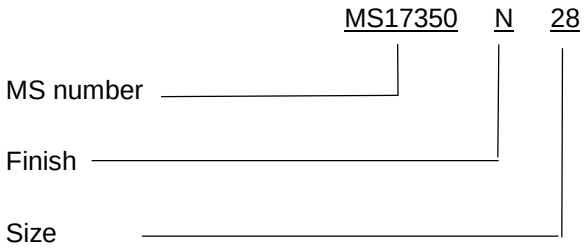
NOTES:
1. All dimensions are in inches.
2. Metric equivalents are given for information only
3. Unless otherwise specified tolerances are ± .016 inch (0.41 mm).
4. F clearance to accommodate screw size indicated .

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Chain shall be passivated stainless steel in accordance with type II, class 3, trade number 8 of RR-C-271 and shall be within one link of length specified.
Cover is used for MS17344.
Cover finish shall be designated by the letter C (conductive) or N (nonconductive).
Chain shall move freely on protective cap after assembly.

Part or Identifying Number (PIN) example:



Qualification:

Visual and mechanical examination.
Humidity.
Durability.
Salt spray (corrosion).
Tensile.
Water immersion.

Group A sampling inspection. 100% inspection is not applicable, sampling inspection shall be in accordance with table I:

TABLE I. Group A sampling plan.

Lot size	Sampling size
1 to 13	100 percent
14 to 150	13 units
151 to 280	20 units
281 to 500	29 units
501 to 1,200	34 units
1,201 to 3.200	42 units

Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS17344
RR-C-271

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – CR, CR4, MI
Navy – AS, CG, MC, OS
Air Force – 19

(Project 5935–4719–010)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-011.

INCH-POUND

MS18062C
DRAFT
SUPERSEDING
MS18062B
12 June 2001

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, DUMMY STOWAGE

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

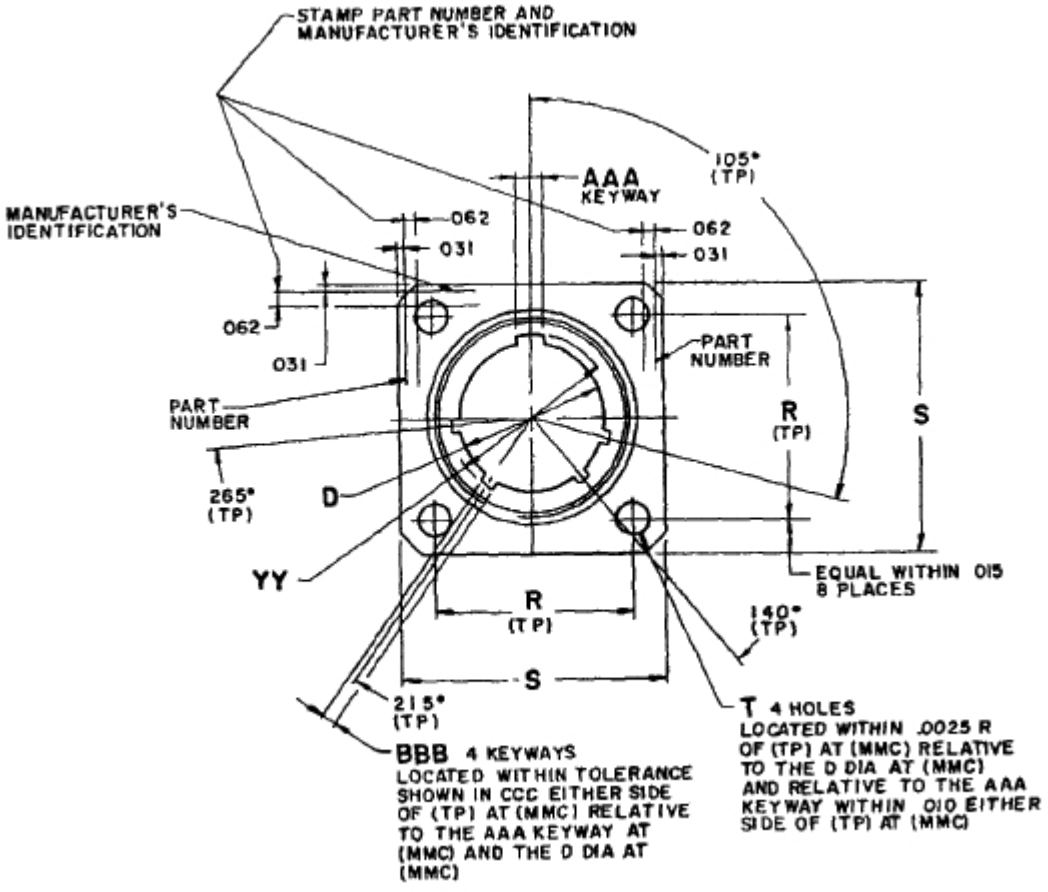


FIGURE 1. Dimensions and configuration.

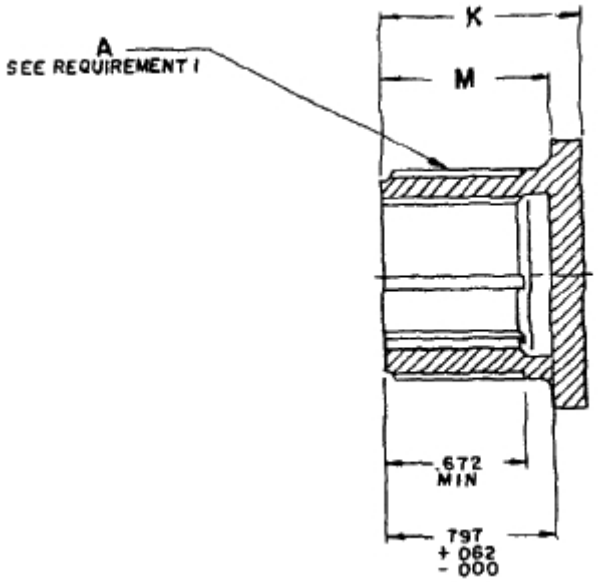


FIGURE 1. Dimensions and configuration. - Continued.

Size	A Thread (plated) Class 2a	D Dia. + .005 - .010	K + .021 - .010	M + .010 - .000	R (TP)
12	0.8750-0.1P-0.2L-DS	.567	.938	.797	.906
14	1.0000-0.1P-0.2L-DS	.692			.969
16	1.1250-0.1P-0.2L-DS	.817			1.062
18	1.2500-0.1P-0.2L-DS	.942	.953		1.156
20	1.3750-0.1P-0.2L-DS	1.068			1.250
22	1.5000-0.1P-0.2L-DS	1.192			1.375
24	1.7500-0.1P-0.2L-DS	1.317	1.047	.859	1.562
28	2.0000-0.1P-0.2L-DS	1.536			1.750
32	2.2500-0.1P-0.2L-DS	1.786	1.110	.922	1.938
36	2.5000-0.1P-0.2L-DS	2.005			2.188
40	2.7500-0.1P-0.2L-DS	2.255			2.375

FIGURE 1. Dimensions and configuration. - Continued.

SIZE	S + .021 - .020	T Dia ± .005	YY Dia. + .010 - .006	AAA	BBB	CCC
12	1.188	.150	.647	.126 -.001, +.007	.063 +.007 -.001	.0035
14	1.281		.772		.063 +.007 -.001	
16	1.375		.897	.182 -.001, +.010	.108 +.010 -.001	.0070
18	1.500	.177	1.022			
20	1.625		1.148			
22	1.750		1.272		.108 +.010 -.001	
24	2.000		1.473	.260 -.001, +.010	.155 +.010 -.001	
28	2.250		1.692			
32	2.500	.209	1.942			
36	2.750		2.161			
40	3.000		2.411		.155 +.010 -.001	

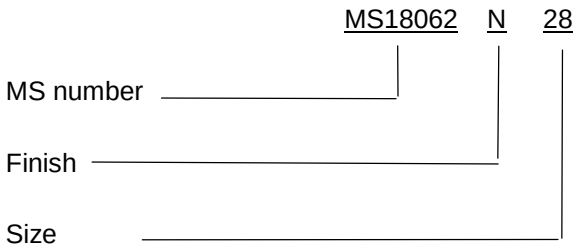
NOTES:
1. All dimensions are in inches.
2. Unless otherwise specified tolerances are ± .016 inch (0.41 mm).

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Mates with plugs shown on MS17344.
Shell finish shall be designated by the letter C (conductive) or N (nonconductive).

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS17344
MIL-STD-1651

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AV, MI
Navy – AS, CG, MC, OS, SH
Air Force – 19

(Project 5935–4719–011)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935–4719-012.

INCH-POUND

MS90557G
DRAFT
SUPERSEDING
MS90557F
10 December 2001

DETAIL SPECIFICATION SHEET

CONNECTOR, PLUG, ELECTRICAL, CABLE CONNECTING,
(WITHOUT COUPLING RING), CLASS L

This specification is approved for use by all Departments
and Agencies of the Department of Defense

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-22992.

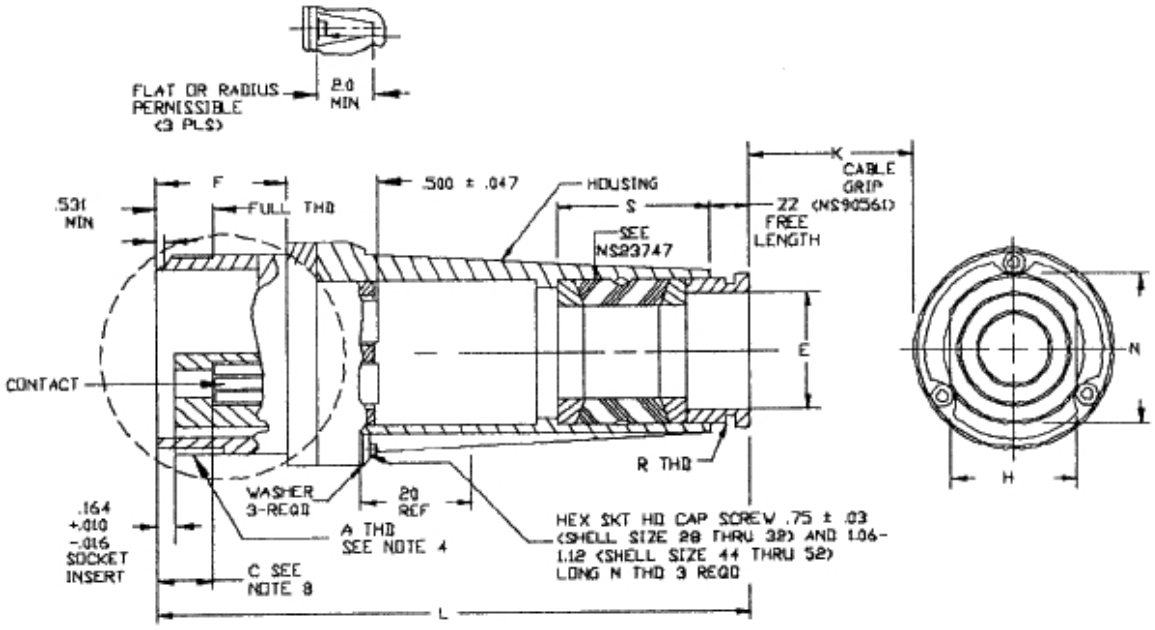


FIGURE 1. Dimensions and configuration.

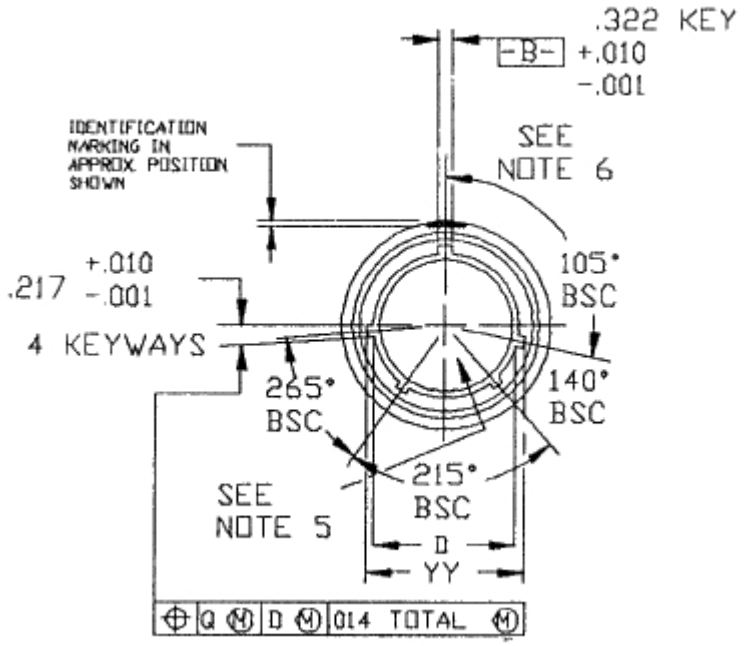


FIGURE 1. Dimensions and configuration. - Continued.

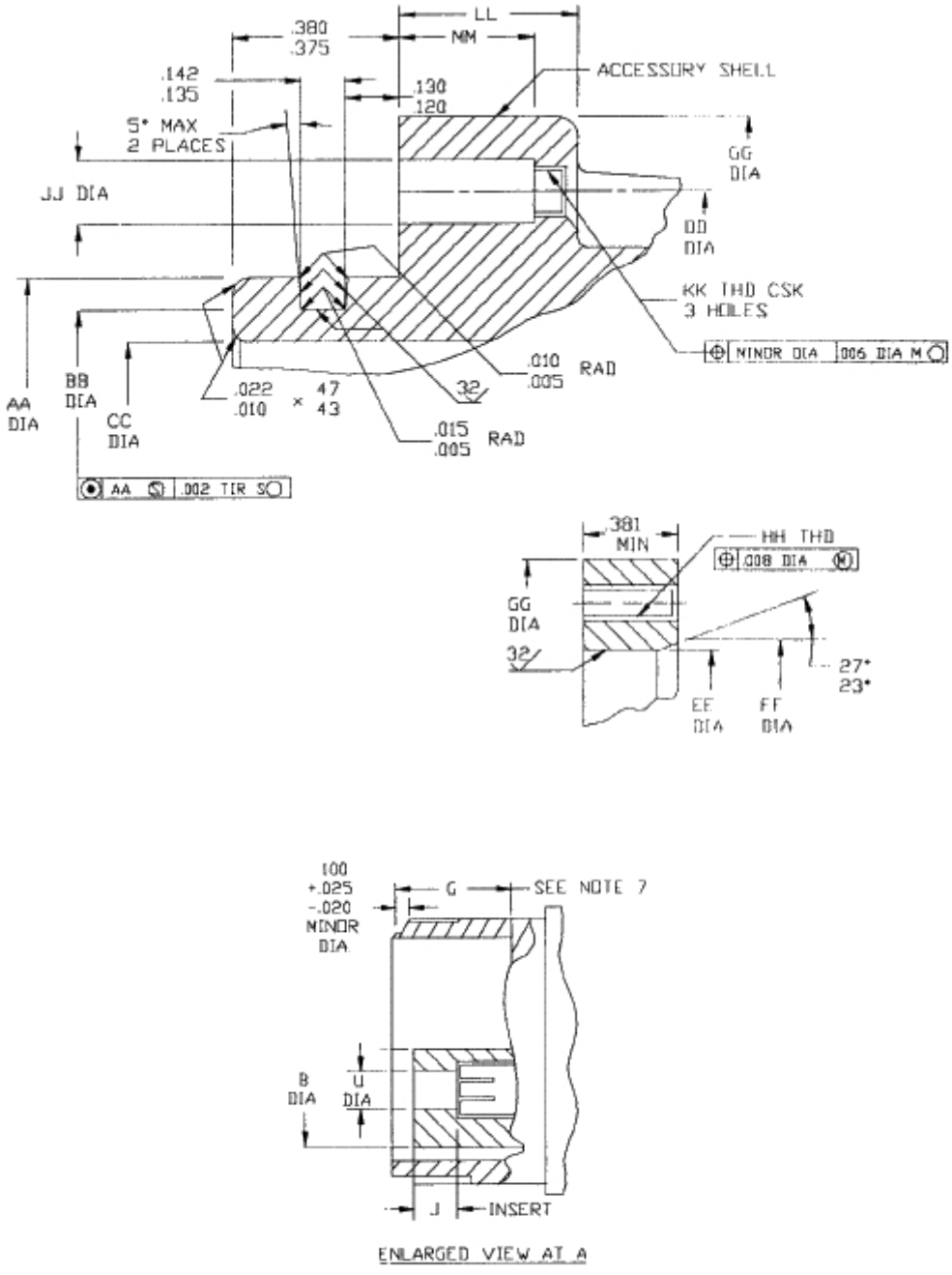


FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	.03	.016	.41	.120	3.05	.380	9.65
.002	.05	.020	.51	.130	3.30	.381	9.68
.005	.13	.022	.56	.135	3.43	.500	12.70
.006	.15	.025	.64	.142	3.61	.531	13.49
.008	.20	.031	.79	.164	4.17	.750	19.05
.010	.25	.047	1.19	.217	5.51	1.125	28.58
.014	.36	.062	1.57	.322	8.18	2.0	50.80
.015	.38	.100	2.54	.375	9.53		

NOTES:

1. All dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified tolerances are ± .016 (0.41 mm).
4. Mates with receptacles shown on MS90558.
5. Inserts and contacts are removable.
6. Normal key position. For alternate key position, see figure 2.
7. G dimension from the front of the shell to the shoulder in the shell.
8. This depth is the point it which the square-ended gauge pin, of the same basic diameter as the mating pin, first engages the spring of the socket contact.

FIGURE 1. Dimensions and configuration. - Continued.

Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.005	0.13	1.138	28.91	1.935	49.15	2.678	68.02	3.156	80.16
.137	3.48	1.156	29.36	1.937	49.20	2.685	68.20	3.174	80.62
.143	3.63	1.281	32.54	1.938	49.23	2.687	68.25	3.185	80.90
.187	4.75	1.405	35.69	1.943	49.35	2.689	68.30	3.187	80.95
.198	5.03	1.514	38.46	2.015	51.18	2.693	68.40	3.193	81.10
.223	5.66	1.531	38.89	2.026	51.46	2.744	69.70	3.265	82.93
.229	5.82	1.539	39.09	2.104	53.44	2.765	70.23	3.276	83.21
.275	6.99	1.562	39.67	2.125	53.97	2.776	70.51	3.406	86.51
.286	7.26	1.655	42.04	2.188	55.58	2.781	70.64	3.646	92.61
.322	8.18	1.674	42.52	2.239	56.87	2.789	70.84	3.656	92.86
.338	8.59	1.685	42.80	2.354	59.79	2.905	73.79	3.667	93.14
.406	10.31	1.687	62.85	2.405	61.09	2.924	74.27	3.896	98.96
.617	10.59	1.693	63.00	2.428	61.67	2.935	74.55	3.917	99.49
.510	12.95	1.733	44.02	2.639	61.95	2.937	76.60	4.146	105.31
.526	13.36	1.765	44.83	2.494	63.35	2.943	74.15	4.167	105.84
.594	15.09	1.776	45.11	2.531	64.29	3.015	76.58		
.605	15.37	1.181	45.24	2.539	64.49	3.026	76.86		
.663	16.84	1.789	45.44	2.655	67.44	3.031	76.99		
.913	23.19	1.926	48.87	2.674	67.92	3.039	77.19		

Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	1.130	28.70	1.609	40.87	2.453	62.31	8.688	220.68
.005	0.13	1.135	28.83	1.672	40.47	2.545	64.64	9.688	246.08
.010	0.25	1.187	30.15	1.692	42.98	2.692	68.38	10.125	257.18
.011	0.28	1.217	30.91	1.703	43.26	2.750	69.85	10.688	271.48
.020	0.51	1.250	31.75	1.734	44.04	2.755	69.98	11.062	280.97
.035	0.89	1.259	31.98	1.750	44.45	2.854	72.49	12.688	322.28
.273	6.93	1.312	33.32	1.786	45.36	2.875	73.02	13.688	347.68
.523	13.28	1.313	33.35	1.797	45.64	2.911	73.94	14.188	360.38
.562	14.27	1.342	34.09	1.867	47.42	2.953	75.01	17.188	436.58
.672	17.07	1.375	34.93	1.942	49.33	3.005	76.33	18.188	461.98
.719	13.36	1.391	35.33	2.000	50.80	3.161	80.29		
.742	18.85	1.438	36.53	2.183	55.45	3.250	82.55		
.844	15.37	1.516	38.51	2.250	57.15	6.688	169.88		
.922	18.26	1.536	39.01	2.308	58.62	7.188	182.58		
1.005	25.53	1.547	39.29	2.328	59.13	8.156	207.16		
1.047	26.59	1.558	39.57	2.448	62.18	8.188	207.98		

FIGURE 1. Dimensions and configuration. - Continued.

Table I. Plug dimensions.

Shell size	M Thread	S max	R THD Class 2 Left hand	DD Dia Basic	GG Dia	HH Thread Class 2B
28	.164-32UNC	1.817	1.8750-16UN	2.104	2.439 2.428	.164-32UNC
32	.164-32UNC	1.817	1.8750-16UN	2.354	2.689 2.678	.164-32UNC
44	.250-28UNF	1.943	1.3125-16UNS	3.156	3.667 3.646	.250-28UNF
48	.250-28UNF	2.130	2.7500-16UN	3.406	3.917 3.896	.250-28UNF
52	.250-28UNF	2.193	3.0000-16UN	3.656	4.167 4.146	.250-28UNF

Table I. Plug dimensions - Continued.

Shell size	KK thread		JJ Dia	EE Dia	FF Dia
	Class 2B	Modified Minor die			
28	.164-32UNC	.143/.137	.198 .187	1.693 1.687	1.776 1.765
32	.164-32UNC	.143/.137	.198 .187	1.943 1.937	2.026 2.015
44	.164-32UNF	.229/.223	.286 .275	2.693 2.687	2.776 2.765
48	.164-32UNF	.229/.223	.286 .275	2.943 2.937	3.026 3.015
52	.164-32UNF	.229/.223	.286 .275	3.193 3.187	3.276 3.265

Table I. Plug dimensions - Continued.

Shell Size	B dia Max	G ± .005	C maximum		Packing Preformed
			Phase Neutral	Ground	
28	1.281	1.514	.913	.913	MS29513-128
32	1.562	1.514	.913	.913	Ms29513-132
44	2.239	1.733	1.138	.663	Ms29513-144
48	2.494	1.733	1.156	.663	Ms29513-148
52	2.744	1.733	1.156	.663	Ms29513-151

Table I. Plug dimensions - Continued.

Shell Size	Hex Socket Head size	AA dia	BB dia	CC Dia min	LL	MM
28	9/64	1.685 1.674	1.539 1.531	1.405	.417 .406	.338 .322
32	9/64	1.935 1.924	1.789 1.781	1.655	.417 .406	.338 .322
44	3/16	2.685 2.674	2.539 2.531	2.405	.605 .594	.526 .510
48	3/16	2.935 2.924	2.789 2.781	2.655	.605 .594	.526 .510
52	3/16	3.185 3.174	3.039 3.031	2.905	.605 .594	.526 .510

Table II. “U” diameter by contact size.

Contact size	“U” diameter C metric equivalent in parentheses)
4/0	.510/.515 (12.95/13.08)
2/0	.416/.421 (10.57/10.69)
1/0	.3671.372 (9.32/9.45)
4	.2351.240 (5.97/6.10)
6	.188/.193 (4.27/4.90)

Table III. Accessory interface dimensions.

Size	Arrangement No.	E Cable Range	K Approx Free length	H + .001 - .010	L Max Free length	N Dia + .011 - .005	F +.011 -.005	YY Dia + .010 - .006	ZZ ± .035 free length
28	-02, -04 -03, -05, -06 -07, -12, -13	.844/ .719 .969/ .844 1.047/ .922 1.130/ 1.005	6.688 7.188 7.188 7.188	1.750	8.156	2.000	2.448	1.692	.562
32	-02, -04 -03, -05, -12 -06 -07 -13	.969/ .844 1.130/ 1.005 1.047/ .992 1.259/ 1.135 1.342/ 1.217	7.188 7.188 7.188 8.188 8.688	1.750	8.156	2.000	2.448	1.942	.562
44	-02, -04 -03, -05 -06 -12 -13 -51	1.312/ 1.187 1.438/ 1.313 1.375/ 1.250 1.516/ 1.391 1.672/ 1.547 1.734/ 1.609	10.688 9.688 9.688 10.688 12.688 11.688	2.250	10.125	2.500	2.854	2.692	.672
48	-13	2.000/ 1.867	14.188	2.750	10.688	2.953	2.854	2.911	.672
52	-02 -06 -12 -13	1.703/ 1.558 1.797/ 1.652 2.328/ 2.183 2.453/2.308	13.688 13.688 17.188 18.188	2.875	11.062	3.250	2.854	3.161	.672

Table III. Accessory interface dimensions - Continued.

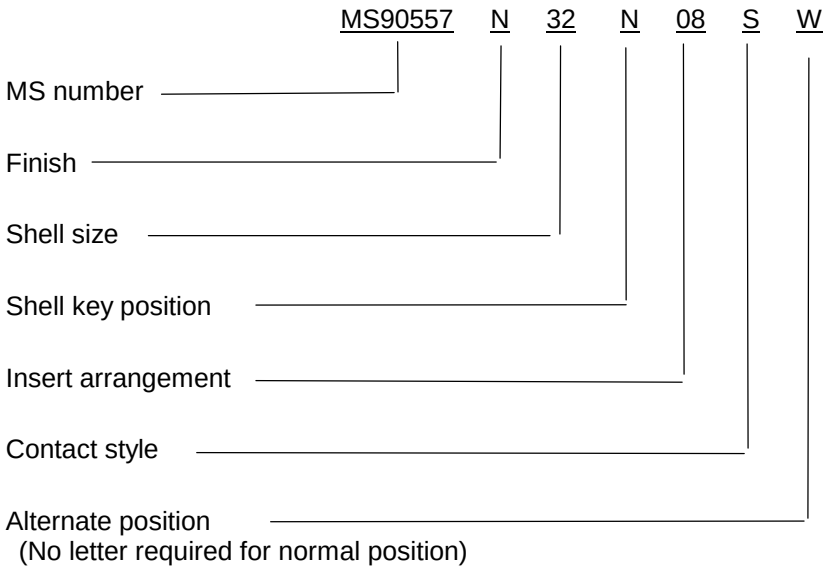
Size	Arrangement No.	E Cable Range	K Approx Free length	A Thread Class 2A	D dia +-005 -.010	J +.020 -.010	
						Phase & neutral	ground
28	-02, -04 -03, -05, -06 -07, -12, -13	.844/ .719 .969/ .844 1.047/ .922 1.130/ 1.005	6.688 7.188 7.188 7.188	2.0000- .1428P-2857L	1.536	.523	.523
32	-02, -04 -03, -05, -12 -06 -07 -13	.969/ .844 1.130/ 1.005 1.047/ .992 1.259/ 1.135 1.342/ 1.217	7.188 7.188 7.188 8.188 8.688	2.250- .1428P-.2857L	1.786	.523	.523
44	-02, -04 -03, -05 -06 -12 -13 -51	1.312/ 1.187 1.438/ 1.313 1.375/ 1.250 1.516/ 1.391 1.672/ 1.547 1.734/ 1.609	10.688 9.688 9.688 10.688 12.688 11.688	3.000-.1428P-2857L	2.545	.742	.273
48	-13	2.000/ 1.867	14.188	3.250-.1428P-.2857L	2.755	.742	.273
52	-02 -06 -12 -13	1.703/ 1.558 1.797/ 1.652 2.328/ 2.183 2.453/2.308	13.688 13.688 17.188 18.188	3.500- 1428P-.2857L	3.005	.742	.273

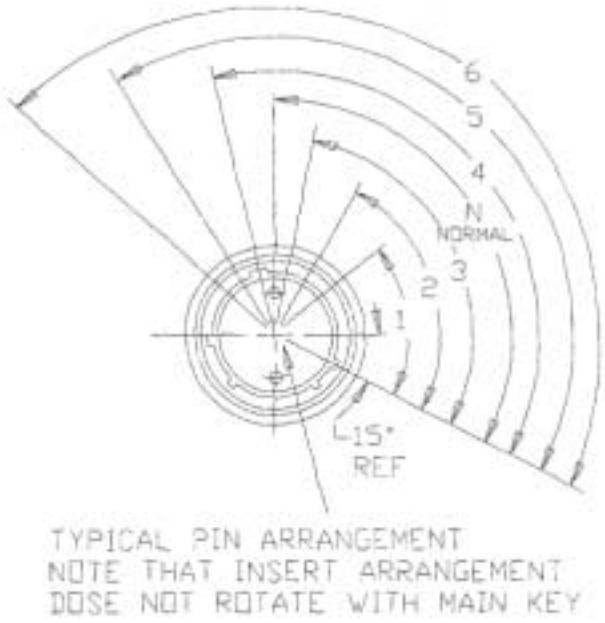
1/ Arrangements 44-52 and 44-56 are for stub cable application only; they are not to be used in a cable.
2/ Arrangement 44-56 to include 4 each MS3348-1-6L contact bushings.

REQUIREMENTS:

Dimensions and configurations: See figures 1 and 2, and tables I, II, and III.
Mating. See MS90558 for mating receptacles.
Inserts and contacts: Removable.
For final installation: Contacts will be assembled in all insert holes.
Shell and nut finish: C (conductive) or N (nonconductive).
Normal keyway position: See figure 1.
Alternate keyway position: See figure 2.
Insert arrangements: See MS90565, MS90567, MS14054. MS14055, and MS16057.
Cover: In accordance with MS90563. Cover shall be attached to cap screw on body.
Crimp bushings: Shall be supplied with the contacts in accordance with MS33348 and table IV herein.
Cable sealing gland: In accordance with MS23747. Shall be supplied with each connector.
Cable grip: In accordance with MS90561. Shall be supplied with each connector.

Part or Identifying Number (PIN) example:





Finish N (non grounding assemblies).

Shell size	Shell main key positions 2 wire, 28 V dc
28	N (105°')
32	N (105°)
46	N (105°)
48	N (105°)
52	N (105°)

Finish C (grounding assemblies)

Shell Size	Shell main key position						
	60 Hz and 400 Hz (see note 1)						
	1Φ			3Φ			3Φ (see note 2)
	2 wire		3 wire	4 wire			3 wire
	120 V	240 V	120/260 V	120/208 V	240/416 V	277/480 V	450/480 V
28	4 (120°)	5 (135°)	4 (120°)	4 (120°)	5 (135°)	6 (150)	---
32	4 (120°)	5 (135°)	4 (120°)	4 (120°)	5 (135°)	6 (150)	---
44	4 (120°')	---	4 (120°)	4 (120°)	5 (135°)	6 (150°)	1 (60°)
48	---	---	4 (120°)	4 (120°)	5 (135°)	6 (150°)	---
52	---	---	4 (120°)	4 (120°)	5 (135°)	6 (150°)	---

Figure 2. Alternate key position.

NOTES:
1. Discrimination of 60 Hz and 400 Hz assemblies is accomplished by alternate positioning of inserts. See applicable insert drawing for keying.
2. For Navy ground support equipment use only.
3. Shell main key positions 2 and 3 are not used.

Figure 2. Alternate key position - Continued.

Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS3348
MS14054
MS14055
MS14057
MS17344
MS23747
MS90558
MS90561
MS90563
MS90565

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, CR4, MI
Navy – AS, CG, MC, OS, SH
Air Force – 13, 19, 99

(Project 5935–4719–012)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC,
has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL.
Project 5935–4719-013.

INCH-POUND

MS90561F
DRAFT
SUPERSEDING
MS90561E
12 June 2001

DETAIL SPECIFICATION SHEET

GRIP, CABLE, WOVEN, STRAIN RELIEF, AXIAL

This specification is approved for use by all Departments
and Agencies of the Department of Defense

The requirements for acquiring the product described herein
shall consist of this specification and MIL-DTL-22992.

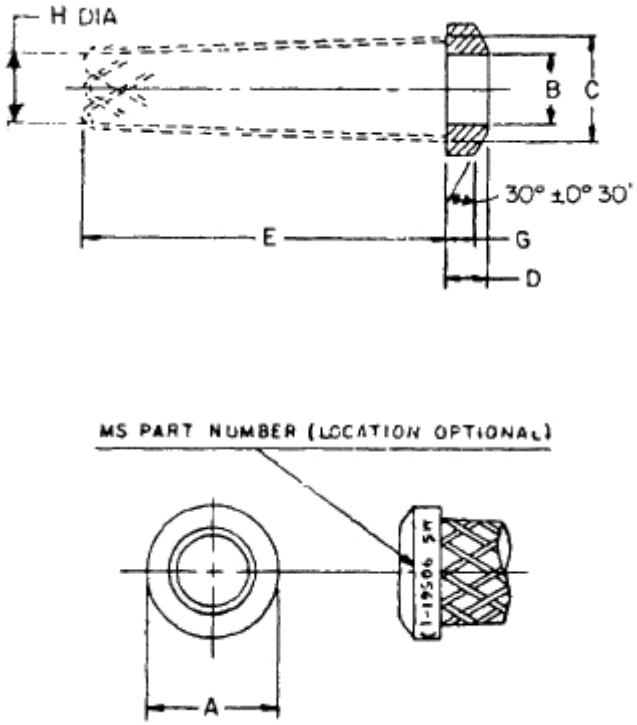


FIGURE 1. Dimensions and configuration.

MS Part Number	Arrangement number	A Dia + .000 - .010	B Dia + .020 - .000	C Dia Max	D ± .015
90561-1	28-03, -05, -06 32-02, 32-04	1.797	.969	1.506	.450
-2	28-13, 32-03 32-05, 32-12	1.797	1.145	1.506	.413
-3	32-07	1.797	1.260	1.506	.368
-4	28-02, 29-04	1.797	.844	1.506	.485
-5	44-02, 44-04	2.235	1.312	1.944	.477
-6	44-06	2.235	1.375	1.944	.459
-7	48-13	2.672	2.062	2.418	.500
-8	52-02	2.922	1.703	2.672	.680
-9	52-06	2.922	1.797	2.672	.653
-10	Canceled	NO SUPERSEDING DATA			
-11	Canceled	NO SUPERSEDING DATA			
-12	28-07, 28-12 32-06	1.797	1.047	1.506	.428
-13	32-13	1.797	1.342	1.506	.366
-14	44-03, 44-05	2.235	1.438	1.944	.441
-15	44-12	2.235	1.516	1.944	.419
-16	44-13	2.235	1.688	1.944	.375
-17	52-12	2.922	2.328	2.672	.497
-18	52-13	2.922	2.500	2.672	.453
-19	44-51	2.235	1.750	1.955	.325
-20	44-52	2.235	1.579	1.944	.406
-21	44-56	2.235	1.160	1.944	340

FIGURE 1. Dimensions and configuration. - Continued.

MS Part Number	Arrangement number	E Approx.	G ± .005	H Dia Cable range	
				max	Min
90561-1	28-03, -05, -06 32-02, 32-04	8.000	.250	.969	.832
-2	28-13, 32-03 32-05, 32-12	8.000	.250	1.145	1.003
-3	32-07	9.000	.250	1.260	1.055
-4	28-02, 29-04	7.500	.250	.844	.688
-5	44-02, 44-04	11.500	.250	1.312	1.156
-6	44-06	10.500	.250	1.375	1.219
-7	48-13	15.000	.369	2.062	1.867
-8	52-02	14.500	.369	1.703	1.414
-9	52-06	14.500	.369	1.797	1.508
-10	Canceled	NO SUPERSEDING DATA			
-11	Canceled	NO SUPERSEDING DATA			
-12	28-07, 28-12 32-06	8.000	.250	1.047	.891
-13	32-13	9.500	.250	1.342	1.185
-14	44-03, 44-05	10.500	.250	1.438	1.282
-15	44-12	11.500	.250	1.516	1.360
-16	44-13	13.500	.250	1.688	1.531
-17	52-12	18.000	.369	2.328	2.039
-18	52-13	19.000	.369	2.500	2.211
-19	44-51	12.500	.250	1.750	1.550
-20	44-52	12.000	.250	1.160	1.375
-21	44-56	8.000	.250	1.160	1.010

FIGURE 1. Dimensions and configuration. - Continued.

NOTES:
1. Material shall be corrosion resisting steel, type 18-8 or equivalent.
2. Dimensions are in inches, unless otherwise specified, tolerance is ± .010
3. Not required to meet the permeability requirements of MIL-DTL-22992

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.

Part or Identifying Number (PIN) example: MS90561-X (See figure 1).

Qualification:

Visual and mechanical examination.
Humidity.
Durability.
Salt spray (corrosion).
Tensile.
Water immersion.

Group A sampling inspection. 100% inspection is not applicable, sampling inspection shall be in accordance with table I:

TABLE I. Group A sampling plan.

Lot size	Sampling size
1 to 13	100 percent
14 to 150	13 units
151 to 280	20 units
281 to 500	29 units
501 to 1,200	34 units
1,201 to 3.200	42 units

Referenced documents. This document references only MIL-DTL-22992.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, CR4, MI
Navy – AS, CG, MC, OS
Air Force – 13, 19, 19

(Project 5935–4719–013)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-014.

INCH-POUND

MS90563F
DRAFT
SUPERSEDING
MS90563E
12 June 2001

DETAIL SPECIFICATION SHEET

COVER, ELECTRICAL CONNECTOR, RECEPTACLE, CLASS L

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

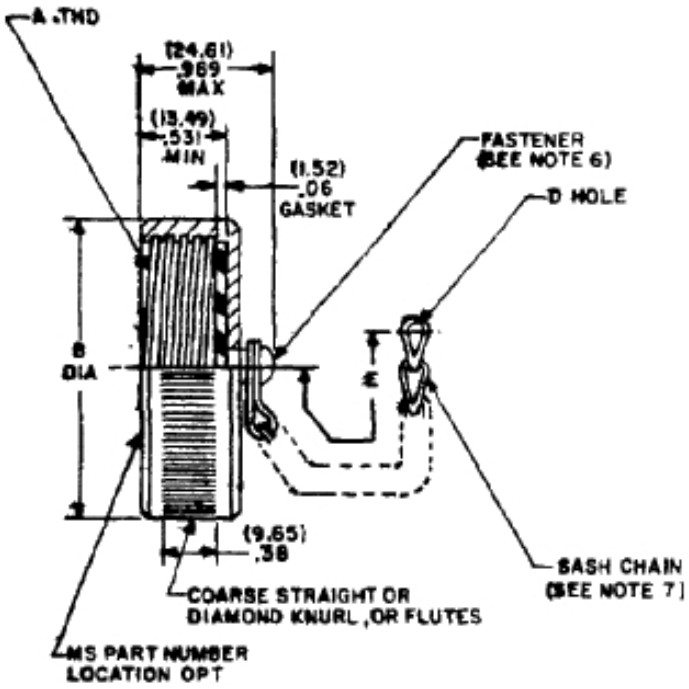


FIGURE 1. Dimensions and configuration.

MS Part number	Shell size	A Thread DS-2B	B Dia. Max.	D Dia.Hole See note 8		E See note 7
				For receptacle MS90555	For plug without coupling ring MS90557	
MS90563 –1 ( )	28	2.000- .1428P-.2857L	2.219 (56.36)	.164	.164	6.000 (152.40)
- 3 ( )	32	2.250-.1428P-.2857L	2.469 (62.71)	.190		4.500 (114.30)
- 4 ( )					.164	6.000 (152.40)
-7 ( )	44	3.000- .1428P-.2867L	3.219 (81.16)	.250	.250	7.500 (190.50)
-9 ( )	46	3.250—.1420P-.2857L	3.469 (18.11)	.250	.250	7.500 (190.50)
-11 ( )	52	3.500-.1428P- .2857L	3.750 (95.25)	.250	.250	7.500 (190.50)

FIGURE 1. Dimensions and configuration. - Continued.

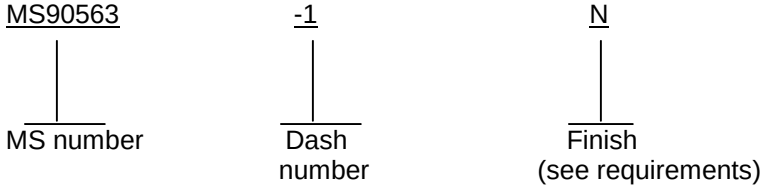
NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general Information only and are based upon 1.00 inch = 25.4 mm.
3. Metric equivalents are In parentheses.
4. Unless otherwise specified, tolerances are + .010 (.25 mm) for three place decimals and ± .02 (.51mm) for two place decimals.
5. D clearance to accommodate screw size indicated. Clearance hole may be rounded and enlarged by the use of a drift pin.

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Chain shall be passivated stainless steel in accordance with type II, class 3, trade number 8 of RR-C-271 for -1, -3 and -4, and type II, class 3, trade number 35 of RR-C-271 for -7, -9 and -11.
Chain shall move freely on protective cap after assembly.
Chain shall be within one link of length specified.
Cover finish shall be designated by the letter C (conductive) or N (nonconductive).
Optional design chain: Chain may be reversed and a larger link provided as a reverse link to provide the necessary D clearance hole.

Part or Identifying Number (PIN) example:



Supersession data:
MS part number MS90563-3 is superseded by MS part number MS90563-3C.
MS part number MS90563-4 is superseded by MS part number MS90563-4C.

Qualification:
Visual and mechanical examination.
Humidity.
Durability.
Salt spray (corrosion).
Tensile.
Water immersion.

Group A sampling inspection. 100% inspection is not applicable, sampling inspection shall be in accordance with table I:

TABLE I. Group A sampling plan.

Lot size	Sampling size
1 to 13	100 percent
14 to 150	13 units
151 to 280	20 units
281 to 500	29 units
501 to 1,200	34 units
1,201 to 3.200	42 units

Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MIL-C-271
MS90563

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, CR4, MI
Navy – AS, CG, MC, OS
Air Force – 19, 99

(Project 5935–4719–014)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-015.

INCH-POUND

MS90564F
DRAFT
SUPERSEDING
MS90564E
12 June 2001

DETAIL SPECIFICATION SHEET

COVER, ELECTRICAL, CONNECTOR, PLUG, CLASS L

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

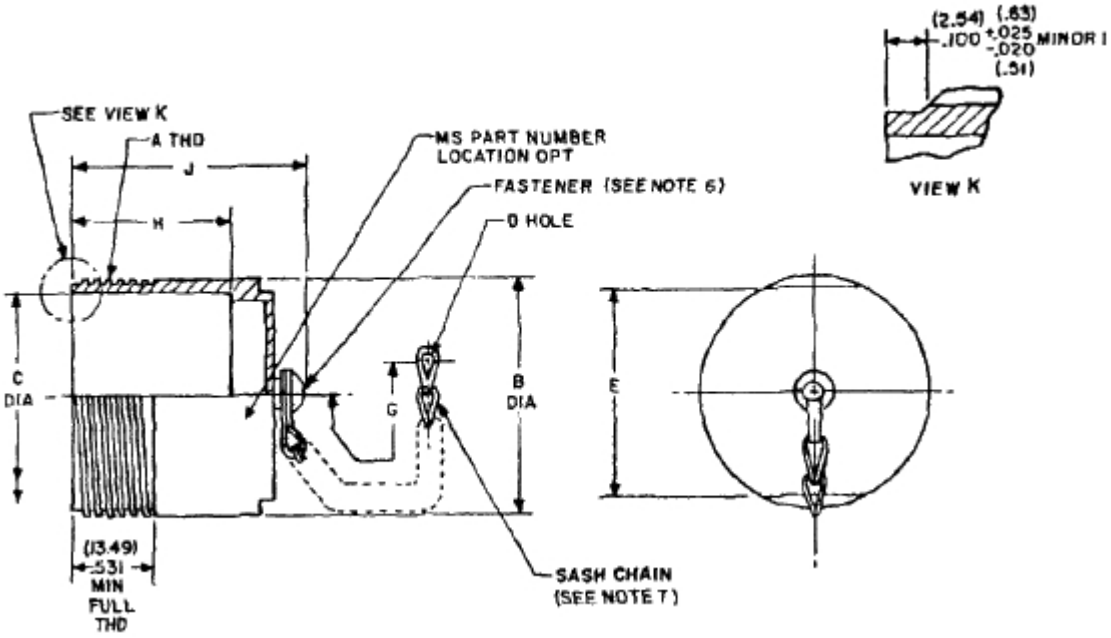


FIGURE 1. Dimensions and configuration.

MS Part	SHELL SIZE	A THREAD DS-2A	B DIA. MAX	C DIA. MIN.
MS90564-1 ( )	28	2.000-.1428P-2857L	2.000 (50.80)	1.692 (42.98)
-3 ( )	32	2.250-.1428P-.2857L	2.250 (57.15)	1.942 (49.33)
-4 ( )				
-7 ( )	44	3.000-.1428P-.2857L	3.000 (76.20)	2.692 (68.38)
-9 ( )	48	3.250-.1428P-.2857L	3.250 (82.55)	29.11 (73.94)
-11 ( )	52	3.500-.1428P-.2857L	3.500 (88.90)	3.161 (80.29)

MS Part	SHELL SIZE	D Dia. Hole See note B		E Across flats	G See Note 7	H Min.	J Max
		For receptacle With coupling ring MS90558	For plug With coupling ring MS90556				
MS90564-1 ( )	28	.164	.164	1.750 (44.45)	7.500 (190.50)	1.562 (39.67)	2.266 (57.56)
-3 ( )	32	.190		2.000 (50.80)	6.000 (152.40)	1.562 (39.67)	2.266 (57.56)
-4 ( )			.164		7.500 (190.50)		
-7 ( )	44	.250	.250	2.750 (69.85)	8.500 (215.90)	1.781 (45.24)	2.484 (63.09)
-9 ( )	48	.250	.250	3.000 (76.20)	8.500 (215.90)	1.781 (45.24)	2.484 (63.09)
-11 ( )	52	.250	.250	3.250 (83.55)	8.500 (215.90)	1.781 (45.24)	2.484 (63.09)

FIGURE 1. Dimensions and configuration. - Continued.

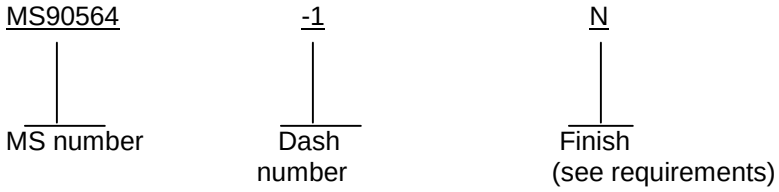
NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general Information only and are based upon 1.00 inch=25.4 mm.
3. Metric equivalents are In parentheses.
4. Unless otherwise specified, tolerances are +.010 (.25 mm) for three place decimals and ±.02 (.51mm) for two place decimals.
5. D clearance to accommodate screw size indicated. Clearance hole may be rounded and enlarged by the use of a drift pin.

FIGURE 1. Dimensions and configuration. - Continued.

REQUIREMENTS:

Design and construction. see figure 1.
Chain shall move freely on protective cap after assembly.
Chain shall be passivated stainless steel in accordance with type II, class 3, trade number 8 of RR-C-271 for -1, -3 and -4, and type II, class 3, trade number 35 of RR-C-271 for -7, -9 and -11.
Chain shall be within one link of length specified.
Cover finish shall be designated by the letter C (conductive) or N (nonconductive).
Optional design chain: Chain may be reversed and a larger link provided as a reverse link to provide the necessary D clearance hole. -

Part or Identifying Number (PIN) example:



Supersession data:
MS part number MS90564-3 is superseded by MS part number MS90564-3C.
MS part number MS90564-4 is superseded by MS part number MS90564-4C.

Qualification:

Visual and mechanical examination.
Humidity.
Durability.
Salt spray (corrosion).
Tensile.
Water immersion.

Group A sampling inspection. 100% inspection is not applicable, sampling inspection shall be in accordance with table I:

TABLE I. Group A sampling plan.

Lot size	Sampling size
1 to 13	100 percent
14 to 150	13 units
151 to 280	20 units
281 to 500	29 units
501 to 1,200	34 units
1,201 to 3.200	42 units

Referenced documents. In addition to MIL-DTL-22992. this document references the following:

MS90556
MS90558
RR-C-271

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, MI
Navy – AS, CG, MC, OS
Air Force – 19, 99

(Project 5935–4719–015)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change. you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-016.

INCH-POUND

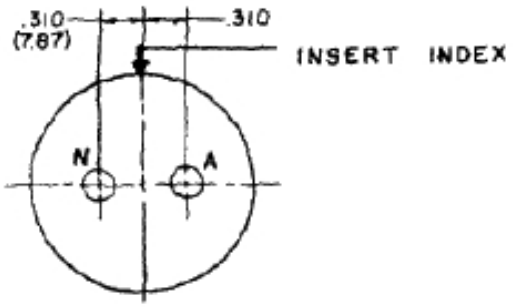
MS90565H
DRAFT
SUPERSEDING
MS90565G
12 June 2001

DETAIL SPECIFICATION SHEET

INSERT ARRANGEMENTS, ELECTRICAL CONNECTOR, SIZE 32, CLASS L, 60 AMPS

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

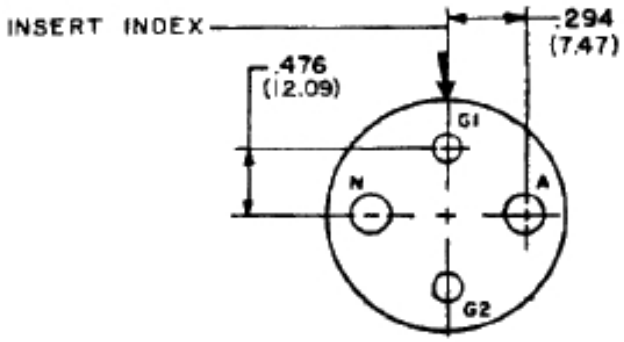


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
1	A	4	49-331	48-320
1	N	4N	49-331 See note 7	48-321

NOTES:
1. -02-Cable IPCEA 2-NO 6 conductor round, type W.
2. -03-Cable-C0-02-HDF (2/4) 1100 PER MIL-C-3432.
3. Mark 32-02 on 32-03 insert (see note 6 of figure 1).

FIGURE 1a. 28 volt DC two wire, -02 and -03 insert arrangements.

FIGURE 1. Insert arrangements, service D.

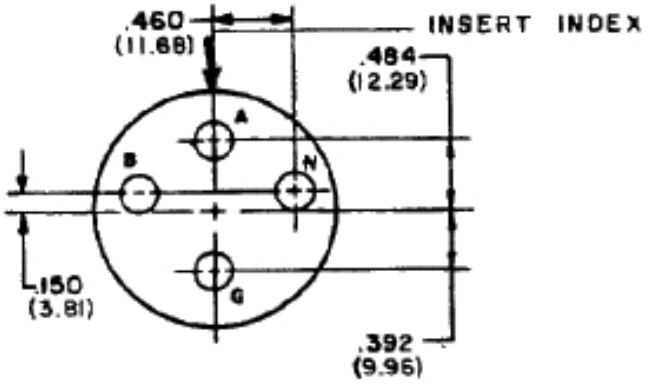


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
1	A	4	49-331	48-320
1	N	4N	49-331 See note 7	48-321
2	G1, G2	6N	49-329 See note 7	48-318

NOTES:
1. -04-Cable IPCEA 2-NO 6 conductor round, type G.
2. -05-Cable-C0-02-HDF (2/6-2/8R) 1100 PER MIL-C-3432.
3. Mark 32-04 on 32-05 insert (see note 6 of figure 1).

FIGURE 1b. AC single phase two wire grounding, -04 and -05 insert arrangements.

FIGURE 1. Insert arrangements, service D - Continued.

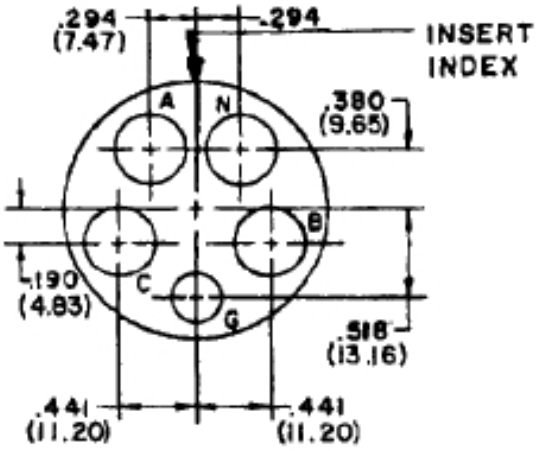


QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
2	A, B	4	49-331	48-320
2	N, G	4N	49-331 See note 7	48-321

NOTES:
1. -06-Cable IPCEA 3-NO 6 conductor round, type G.
2. -07-Cable-C0-03-HDF (3/4-3/10R) 1210 PER MIL-C-3432.
3. Mark 32-06 on 32-07 insert (see note 6 of figure 1).

FIGURE 1c. AC single phase three wire grounding, -06 and -07 insert arrangements.

FIGURE 1. Insert arrangements, service D - Continued.



QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
3	A, B, C	4	49-331	48-320
1	N	4N	49-331 See note 7	48-321
1	G	6N	49-329 See note 7	48-318

NOTES:
1. -12-Cable IPCEA 4-NO 6 conductor round, type G.
2. -13-Cable-C0-04-HDF (4/4-4/12R) 1290 PER MIL-C-3432.
3. Mark 38-12 on 32-13 insert (see note 6 of figure 1).

FIGURE 1d. AC three phase four wire grounding, -12 and -13 insert arrangements.

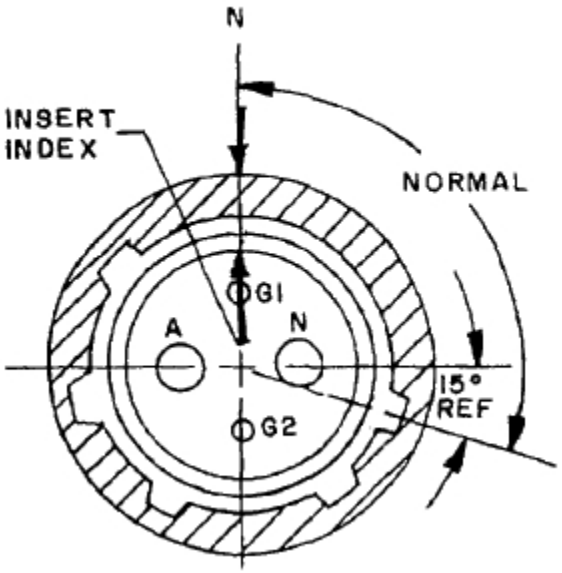
FIGURE 1. Insert arrangements, service D - Continued.

Insert rotation (degrees from normal)				
Arrangement Number	NORMAL DC or 60 Hz (see fig 2)	Alternate (see fig 2) 400 Hz		
		W	X	Y
32 – 02 32 – 03	0 °	---	---	---
32 – 04 32 – 05	0°	---	90°	---
32 – 06 32 – 07	0°	---	---	---
32 – 12 32 – 13	0°	---	---	180°

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Metric equivalents are in parentheses.
4. Unless otherwise specified, tolerance is ± .002 (.05 mm).
5. Unless otherwise specified, front face of pin insert pattern is shown. Socket inserts are the reverse.
6. Trademark and 32-( ) shall appear in available space. Contact identifying letter shall be located so as to identify relative contact.
7. Only the pin contact is lengthened and has the N (neutral) designation. The mating socket contact is the same as the power contact.

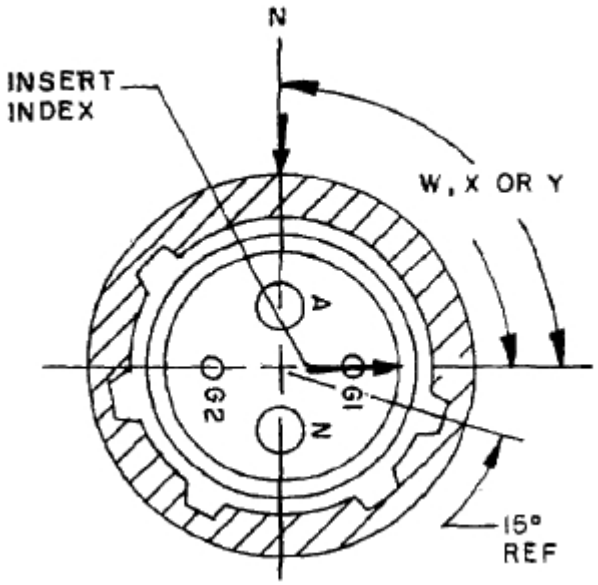
FIGURE 1. Insert arrangements, service D - Continued.



NOTES:
1. REF. MS90555******S.
2. REF. MS90557******S.
3. Front face of socket insert shown.

FIGURE 2a. Insert in normal position (60 Hz power only).

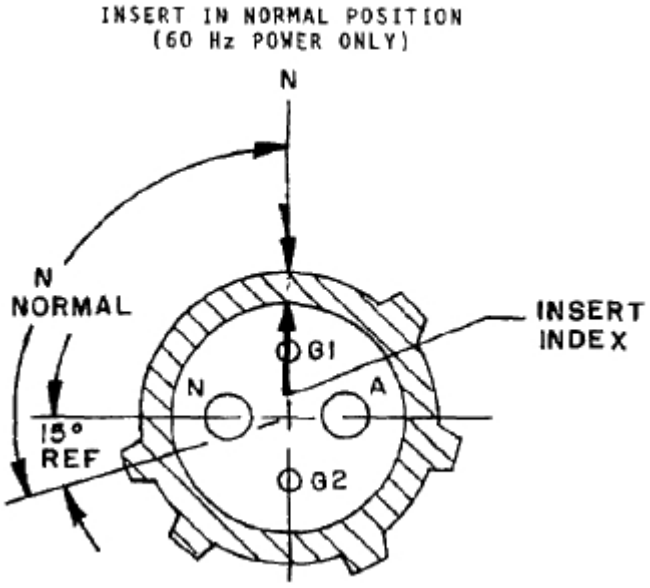
FIGURE 2. Socket contact pattern and polarization.



NOTES:
1. REF. MS90555******SX.
2. REF. MS90557******SX.
3. Front face of socket insert shown.

FIGURE 2b. Insert in alternate position (400 Hz power only).

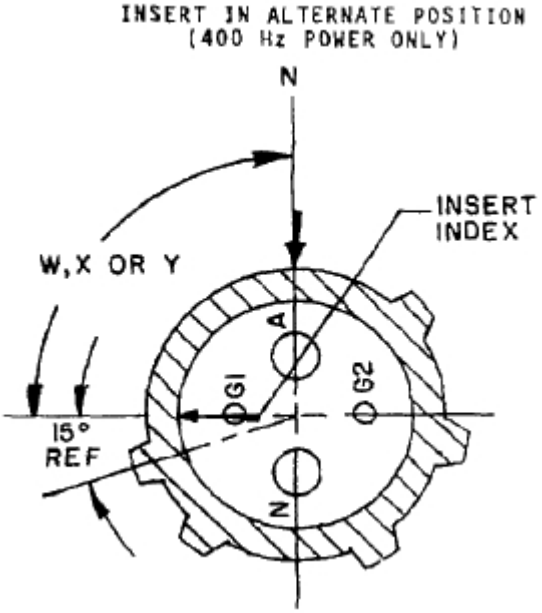
FIGURE 2. Socket contact pattern and polarization - Continued.



NOTES:
1. REF. MS90556******P.
2. REF. MS90558******P.
3. Front face of pin insert shown.

FIGURE 2c. Insert in normal position (60 Hz power only).

FIGURE 2. Socket contact pattern and polarization - Continued.



NOTES:
1. REF. MS90556******PX.
2. REF. MS90558******PX.
3. Front face of pin insert shown.

FIGURE 2d. Insert in alternate position (400 Hz power only).

FIGURE 2. Socket contact pattern and polarization - Continued.

REQUIREMENTS:

Design and construction, see figures 1 and 2, and table 1.
Neutral pin (N) is not connected to shell.
Grounding pin (G) is connected to shell.
Applicable MS3348 crimp bushings shall be supplied with the contacts for insert arrangements as specified.

Table 1. Accessories.

Insert Arrangement	Contacts		Cable conductors MS90556 & MS90557 1/		Contact bushings required	
	QTY	SIZE	QTY	SIZE	QTY	P/N MS3348
32 – 02	2	4	2	6	2	4-6L
32 – 04	2	4	2	6	2	4-6L
	2	6	2	10(G)	2	6-10L
32 – 05	2	4	2	4	-	-
	2	6	2	8(G)	2	6-8L
32 – 06	3	4	3	6	3	4-6L
	1	4	3	12(G)	1	4-8L
32 – 12	4	4	4	6	4	4-6L
	1	6	4	12G	-	-

1/ (G) Designates grounding.

Referenced documents. In addition to MIL-DTL-22992, this document references the following:

MIL-C-39029
MIL-C-3432
MS3348
MS90555
MS90556
MS90557
MS90558

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AT, AV, CR4, MI
Navy – AS, CG, MC, SH, YD
Air Force – 19

(Project 5935–4719–016)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://www.dodssp.daps.mil.

Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-017.

INCH-POUND

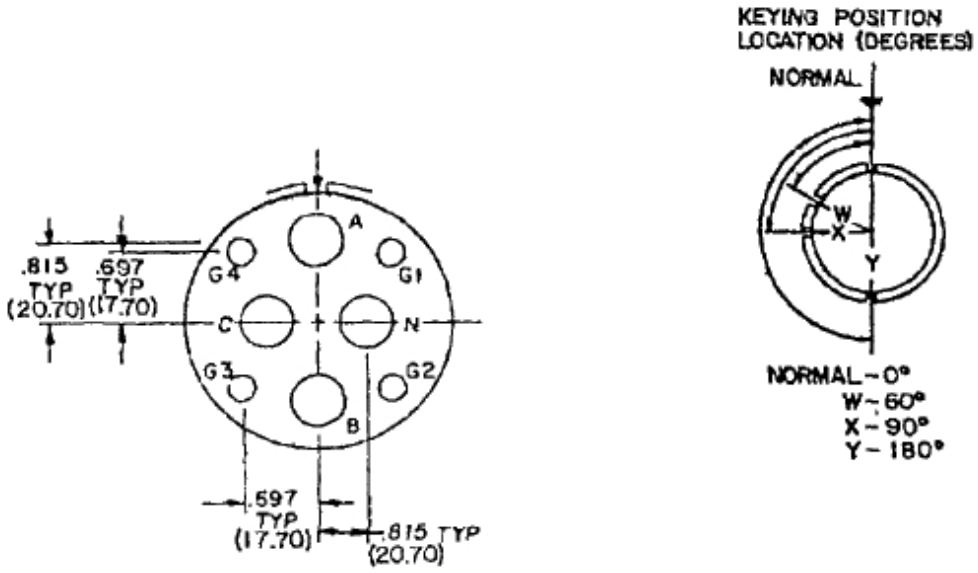
MS90567C
DRAFT
SUPERSEDING
MS90567B
12 June 2001

DETAIL SPECIFICATION SHEET

INSERT ARRANGEMENTS, ELECTRICAL CONNECTOR, SIZE 48, CLASS L, 150 AMPS

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.



QTY	CONTACT	SIZE	SOCKET M39029	PIN M39029
3	A, B, C	2/0	49-334	48-325
1	N	2/0N	49-334 See note 7	48-326
4	G1, G2, G3, G4	6G	49-330 See note 7	48-319

FIGURE 1. AC three phase, four wire grounding, -13 insert arrangements, service D.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Metric equivalents are in parentheses.
4. Unless otherwise specified, tolerance is ± .002 (.05 mm).
5. Unless otherwise specified, front face of pin insert pattern is shown. Socket inserts are the reverse.
6. Trademark and 48-( ) shall appear in available space. Contact identifying letter shall be located so as to identify relative contact.
7. Mark 48-12 on 48-13 insert (see note 6 of figure 1).
8. Cable-C0-04-HDF (4/00-4/6R) 1930 PER MIL-C-3432.

FIGURE 1. AC three phase, four wire grounding, -13 insert arrangements, service D - Continued.

REQUIREMENTS:

Design and construction, see figure 1.
Neutral pin (N) is not connected to shell.
Grounding pin (G) is connected to shell.
The normal (0°) keying position shall be used for direct current and 60 Hz alternating current (AC) and the W (60°) keying position for 400 Hz AC.

Referenced documents. In addition to MIL-DTL-22992, this document references the following:

MIL-C-39029
MIL-C-3432

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AR, MI
Navy – AS, CG, MC, OS
Air Force – 19

(Project 5935–4719–017)

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Note: This draft, dated 14 April 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. Project 5935–4719-018.

INCH-POUND

MS90569A
DRAFT
SUPERSEDING
MS90569
12 June 2001

DETAIL SPECIFICATION SHEET

ADAPTER, STEP - UP, CABLE SEALING AND GRIPPING

This specification is approved for use by all Departments and Agencies of the Department of Defense

The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-22992.

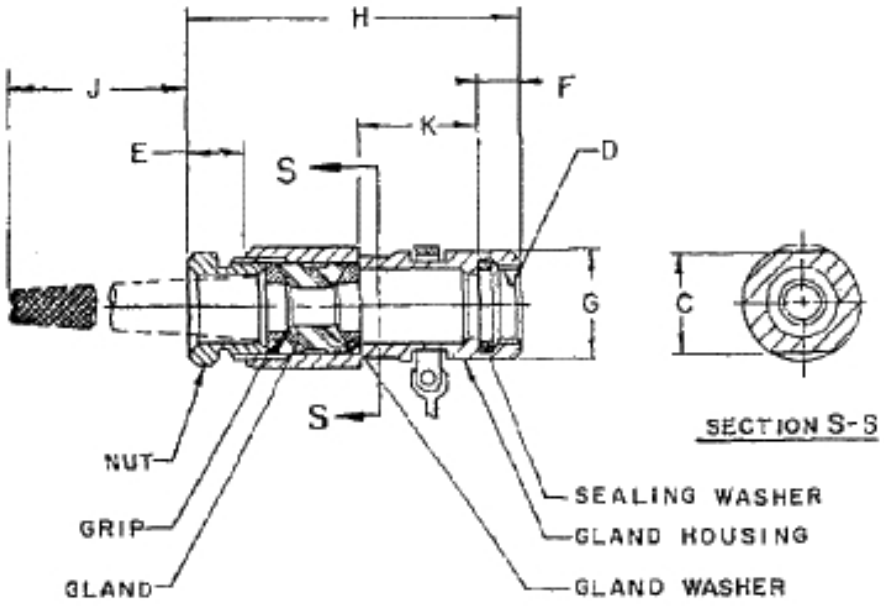


FIGURE 1. Adapter.

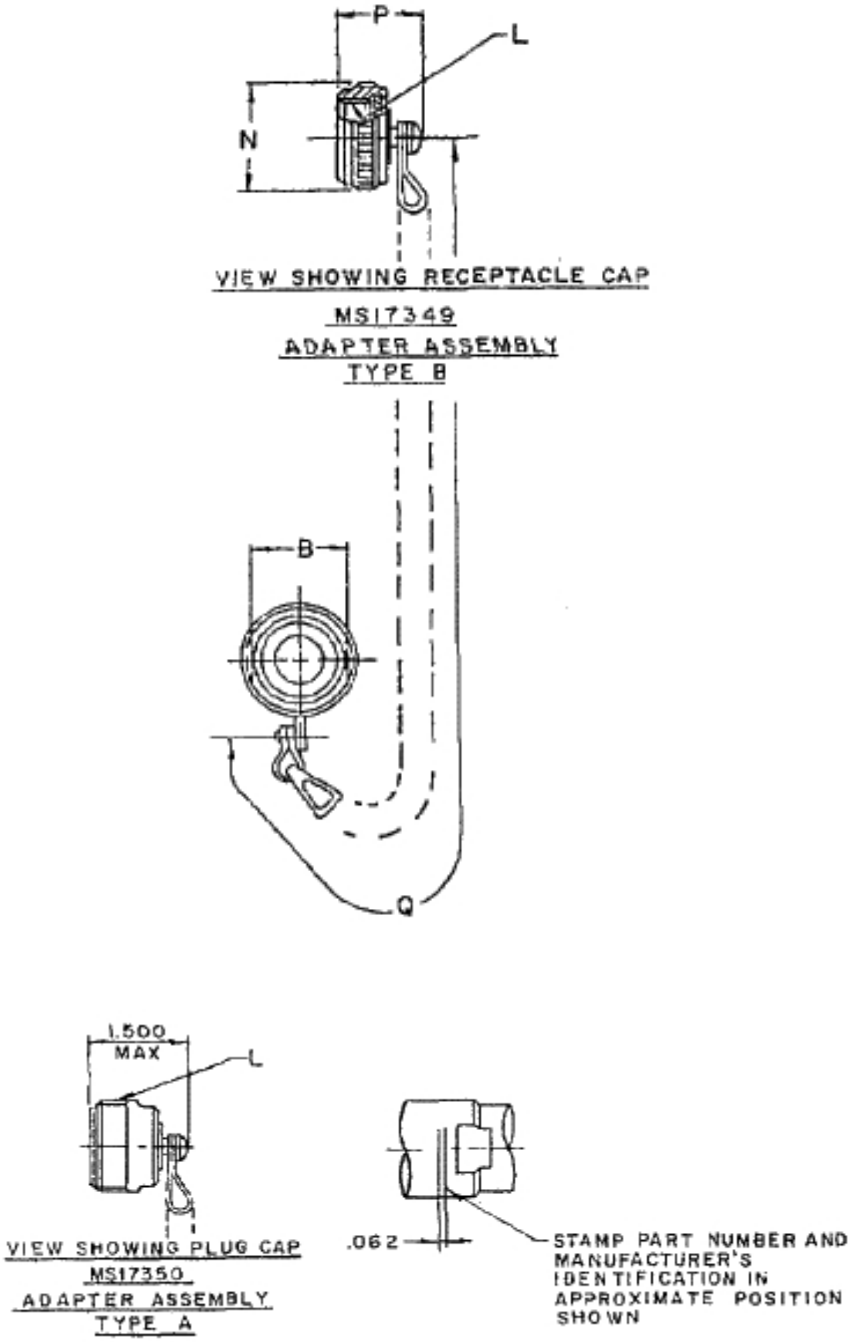


FIGURE 1. Adapter - Continued.

Adapt Size no.	Size	Cable range		B +.000 -.010	C +.000 -.010	D Thread Class 2B-LH	E Free Lg Max	F ±.016	G Dia -.010 -.020
		Max Dia	Min Dia						
1	12	.530	.436	1.000	.812	.7500-20UNEF	.597	.479	.938
2		.500	.406	.875	.938		.539		
3		.405	.316	1.000	.812		.597		
4	14	.625	.560	1.062	1.125	.8750-20 UNEF			1.062
5		.605	.511	1.000	1.062				
6		.530	.436						
7		.405	.316						
8	18	.828	.715	1.125	1.250	1.1250-18UNEF			1.312
9	20	1.055	.930	1.500	1.375	1.2500-18UNEF			1.438
10		1.000	.875						
11		.900	.787	1.250					
12		.750	.637						
13	22	1.109	.984	1.500	1.625	1.3750-18UNEF			1.562
14		1.000	.875						
15	24	1.375	1.250	2.000	1.875	1.6250-18UNEF			1.812
16		1.310	1.185	1.750					
17		1.230	1.105						
18		1.180	1.055						
19	28	1.531	1.406	2.000	2.062	1.8750-16UN			2.062
20		1.445	1.320						
21		1.375	1.250						
22	32	1.825	1.700	2.438	2.312	2.0625-16UN	.710		2.312
23		1.730	1.605						
24		1.656	1.531	2.250			.597		
25	36	2.062	1.917	2.750	2.500	2.3125-16UN	.710		2.562
26		1.984	1.859	2.438					
27		1.900	1.775						
28		1.825	1.700						
29		1.730	1.605						
30	40	2.375	2.230	2.875	2.812	1.6250-16UN			2.875
31		2.250	2.105	2.750	2.625	2.6250-16UN	.709	.667	
32		2.145	2.000						
33		2.062	1.917				.710		

FIGURE 1. Adapter - Continued.

Adapt Size no.	Size	H Max	J Approx Free Length	K +.015 -.025	L Thread (plated) class 2(A or B)	N Dia max	P max	Q Within One link
1	12	3.810	4.688	1.219	.8750-0-1P-0.2l-DS	1.094	.765	5.00
2		3.248	4.344	.871				
3		3.810	3.688	1.219				
4	14	4.024	6.188	1.371	1.0000-1P-0.2l-DS	1.219		
5		3.712	5.188	1.121				
6			4.688					
7			3.688					
8	18	4.087	6.688	1.343	1.2500-1P-0.2l-DS	1.469	.980	
9	20	4.212	7.688	1.371	1.3750-1P-0.2l-DS	1.562		
10								
11		4.150	7.188					
12			6.688					
13	22	4.212	7.688		1.5000-1P-0.2l-DS	1.688		6.00
14			7.188					
15	24	4.275	9.688	1.309	1.7500-1P-0.2l-DS	1.938		
16			8.688	1.372				
17			8.188					
18								
19	28	4.337	10.688	1.371	2.0000-1P-0.2l-DS	2.219		
20			9.688					
21								
22	32	4.704	13.688	1.375	2.2500-1P-0.2l-DS	2.469		
23			13.688					
24		4.399	12.688	1.370				
25	36	4.704	14.188	1.375	2.5000-1P-0.2l-DS	2.719		
26		4.673	13.688	1.344				
27								
28								
29								
30	40	5.000	18.188	1.421	2.7500-0-0.2L-DS	2.969		
31			17.188					
32		4.939	14.188	1.422				
33								

FIGURE 1. Adapter - Continued.

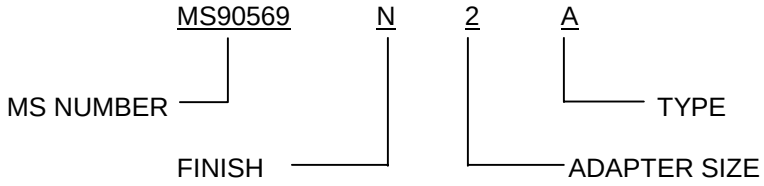
NOTES:
1. All dimensions are in inches.
2. Unless otherwise specified, tolerance for decimals is ± .016.
3. It is intended that connectors and their associated accessories be of the same finish (see requirements).

FIGURE 1. Adapter - Continued.

REQUIREMENTS:

Design and construction, see figure 1.
The adapters are for use with class R and C connectors shown on MS17343, MS71344, MS17345, and MS17347.
Adapter finish shall be designated by the letter C (conductive) or N (non-conductive).
Adapter assembly type shall be designated as A or B.
Type A is for use with connector MS17344.
Type B is for use with connectors MS17343, MS17345, and MS17347.
Adapter, cap and chain is considered a complete assembly.
Chain shall be passivated corrosion resistant (stainless) steel in accordance with type II, class 3, trade number 8 of RR-C-271 and shall be within one link or the length specified herein.

Part or Identifying Number (PIN) example:



Referenced documents. In addition to MIL-DTL-22992, this document references the following:

MS17343
MS17344
MS17345
MS17347
MS17349
MS17350
RR-C-271

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA – CC

Preparing activity
DLA – CC

Review activities:
Army – AV, MI
Navy – AS, CG, MC, OS, SH
Air Force – 19

(Project 5935–4719–018)

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